Class
XI

LIBRARY AND INFORMATION SCIENCE

CENTRAL BOARD OF SECONDARY EDUCATION
Shiksha Kendra, 2, Community Centre, Preet Vihar, Delhi-110 301 India

नया आगाज़

आज समय की माँग पर
आगाज़ नया इक होगा
निरंतर योग्यता के निर्णय से
परिणाम आकलन होगा।

परिवर्तन नियम जीवन का
नियम अब नया बनेगा
अब परिणामों के भय से
नहीं बालक कोई डरेगा

निरंतर योग्यता के निर्णय से
परिणाम आकलन होगा।

बदले शिक्षा का स्वरूप
नई खिले आशा की धूप
अब किसी कोमल-से मन पर
कोई बोझ न होगा

निरंतर योग्यता के निर्णय से
परिणाम आकलन होगा।
नई राह पर चलकर मंज़िल को हमें पाना है
इस नए प्रयास को हमने सफल बनाना है
बेहतर शिक्षा से बदले देश, ऐसे इसे अपनाए
शिक्षक, शिक्षा और शिक्षित
बस आगे बढते जाएँ
बस आगे बढते जाएँ
बस आगे बढते जाएँ.....

CBSE
CONTINUOUS AND COMPREHENSIVE EVALUATION
KNOW - AS YOU GROW

LIBRARY AND INFORMATION SCIENCE

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Library and Information Science

Class XI

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भारत का संविधान

उद्देशिका

हम, भारत के लोग, भारत को एक सम्पूर्ण [1]प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,
विचार, अभिव्यक्ति, विश्वास, धर्म
और उपासना की स्वतंत्रता,
प्रतिष्ठा और अवसर की समता
प्राप्त कराने के लिए
तथा उन सब में व्यक्ति की गरिमा
[2]और राष्ट्र की एकता और अखंडता
सुनिश्चित करने वाली बंधुता बढ़ाने के लिए

दृढ़संकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई॰ को एतद्द्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

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1. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

भाग 4 क

मूल कर्त्तव्य

51 क. मूल कर्त्तव्य – भारत के प्रत्येक नागरिक का यह कर्त्तव्य होगा कि वह –

(क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;

(ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;

(ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;

(घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;

(ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;

(च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परिरक्षण करे;

(छ) प्राकृतिक पर्यावरण की जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणी मात्र के प्रति दयाभाव रखे;

(ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;

(झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;

(ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले;

[1](ट) यदि माता-पिता या संरक्षक है, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य के लिये शिक्षा के अवसर प्रदान करे।

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1. संविधान (छयासीवां संशोधन) अधिनियम, 2002 की धारा 4 द्वारा प्रतिस्थापित।

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1]**SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the[2] unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

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1. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "unity of the Nation" (w.e.f. 3.1.1977)

THE CONSTITUTION OF INDIA

Chapter IV A

FUNDAMENTAL DUTIES

ARTICLE 51A

Fundamental Duties - It shall be the duty of every citizen of India-

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;

[1](k) who is a parent or guardian to provide opportunities for education to his/her child or, as the case may be, ward between age of 6 and 14 years.

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1. Subs. by the Constitution (Eighty - Sixth Amendment) Act, 2002

Preface

The library is the main element for the development of a modern society. As a service agency, it organizes and facilitates the use of information and knowledge for the development of an individual as well as the society. The objective of the library profession is to provide the right information, to the right user, at the right time, with a positive attitude.

In the changing environment, with the rapid development of I.T., the role of a library has changed from document management to knowledge management. Therefore, a modern society requires a modern library with highly skilled manpower to maximize the library services to reach out to their users and fulfill their informational needs.

To bridge the gap between the demand and supply of qualified library professional, CBSE has introduced L.I.Sc., a course at the senior secondary level. The curriculum is, therefore, designed in such a way that it fulfills the objective of introducing the course at this level.

My heartfelt gratitude is due to the CBSE Course Committee in Library & Information Science, for taking the lead in developing the textbook and guiding the team. My sincere thanks are due for Prof. P. B. Mangla, Shri Kumar Sanjay, Dr. A. P. Singh, Shri K. N. Jha and Shri S. L. Faisal for their compilation, as materials developers for the book.

The development of the materials for this book would never have been possible, but the sincere efforts put in by Dr. B. N. Singh, Deputy Director/AL as the co-ordinator under the guidance of Dr. Sadhana Parashar, Prof. & Director (Academic, Research Training and Innovation), CBSE.

Any further suggestions for improving the course contents are always welcome and will be incorporated in the future edition.

Vineet Joshi
Chairman

Foreword

The CBSE has introduced **Library and Information Science** as a course at the senior secondary level to fulfil the requirement of developing necessary skills in learners to identify, locate, evaluate and use the required knowledge efficiently. In the current climate of psychological, social and economic changes, society is influenced by explosive knowledge creation and exponential technology growth. Thus, introducing the LISc course at +2 level is a necessary step in the upgradation of the existing scenario.

As India moves towards a knowledge-based society, with a proliferation of learning and research institutions, the demand for and importance of Library Science is growing rapidly. With the advent of information technology, the traditional concept is being revised to include new-age tools of information like CDs, Internet, e-libraries etc. There is a demand for library professionals at all levels: in schools, colleges, universities, research and development institutions, government departments and corporate sectors. With an increasing number of educational institutions and growth of industry, job opportunities for librarians have increased manifold. Therefore, library professionals need to have good IT skills, a strong academic aptitude and be service minded.

The main objective of the course is to provide the basic concepts of **Library and Information Science,** and equip the students with library rules, professional skills and competencies so that they can choose and start their career as a Librarian. The increasing use of the internet also impacts our objectives to give our learners a greater autonomy in their learning. At +2 level, students begin to contemplate and introspect on their choice of subject for higher studies. For some students, this stage may be the end of their formal education, leading to the world of work and employment; for others, it may be the foundation for higher education. They may choose either a specialized academic course or a job-oriented course. Thus, L.I.Sc. course would equip them with the necessary skills, and make a meaningful contribution towards their personal and professional growth in the future.

One of the important aspects of this elective subject is to improve the education system for Library and Information Science at the school level subject, which may be equivalent to Diploma in Library and Information Science. The elective will impart some of the basic contents and concepts of L.I.Sc. to those who aspire to pursue higher studies in Library and Information Science.

The course is defined with the following objectives:

- To develop the basic understanding of theoretical and practical aspects of Library and Information Science.
- To equip the students to pursue the subject for higher education in future.
- To develop basic skills among students who opt to work as semi professionals in the libraries, after +2 Level.

Library and Information Science, an academic elective (Code No 079), would nurture the interest of students and expose them to the nuances of skills and approaches required in this field. The elective can be opted by students as one of the four elective subjects and also as an additional elective subject at the senior secondary stage, in combination with any of the subjects that are already available in the Scheme of Studies of the Board.

This course enhances students' professional skills, provides some background information and explains the basic concepts to help them attain a better understanding of the subject.

Teachers handling the course need to equip themselves regarding the effective use of course content, teaching methodology, management of group work and individual work, appropriate use of assessment tools, and grading system and record keeping, in order to benefit their students.

Course Development Committee Team

Acknowledgement

ADVISORY BODY

- Shri. Vineet Joshi, Chairman, CBSE
- Dr. Sadhana Parashar, Professor & Director (ART & I), CBSE

COURSE DEVELOPMENT COMMITTEE

- Professor P. B. Mangla, Former HOD & Dean, Faculty of Arts, Delhi University
- Shri. Kumar Sanjay, Chief Librarian-cum-Documentation Officer, Planning Commission, New Delhi
- Dr. A. P. Singh, Associate Professor, Department of Library and Information Science, BHU, Varanasi
- Shri. Kripa Nand Jha, Sr. Lecturer, Department of Library and Information Science, MBIT, New Delhi
- Shri. S. L. Faisal, Librarian, Kendriya Vidyalaya Pattom, Thiruvananthapuram, Kerala

MONITORING AND EDITING COMMITTEE

- Ms. P. Rajeswary, Education Officer, CBSE, New Delhi
- Mr. Salim Naqvi, Library Assistant, CBSE, New Delhi

CO-ORDINATOR

- Dr. B. N. Singh, Deputy Director/AL, CBSE, New Delhi

Module Objectives

S.No.	Units	Duration	Key Learning Objectives
1.	Library, Information and Society: Concepts		◆ To understand the development of civilization ◆ To gain knowledge about the growth of Information and Knowledge ◆ To know about the Society and its informational needs ◆ To understand the evolution of library ◆ To understand the role of a library in our society ◆ To know the concept of trinity
2.	Types of Libraries and their Role		◆ To develop different types of libraries ◆ To know the role of Public Library ◆ To know about the Academic Library and its role ◆ To understand Special Library and its role ◆ To understand the Digital Library and its characteristics ◆ To gain knowledge about the Virtual Library and its characteristics
3.	Five Laws of Library Science and their Implications		◆ To understand the Five Laws of Library Science ◆ To gain knowledge about the implications of the first law 'Books are for use” ◆ To understand various obligations for satisfying the second law of Library Science "Every reader his/her book" ◆ To understand the implications of the third law of Library Science "Every book its reader” ◆ To gain knowledge about the implications of the fourth law "Save the time of the reader”

			◆ To understand the implications of the fifth law "Library is a growing organism"
4.	Library Classification		◆ To understand the concept of Classification. ◆ To understand the difference between Classification and other terms. ◆ To gain knowledge about the need and purpose of Classification. ◆ To gain knowledge about the DDC Scheme and CC Scheme of Classification
5.	Library Cataloguing		◆ To understand the meaning and definition of a Library Catalogue ◆ To gain knowledge about the need, objective, purpose and functions of a Library Catalogue ◆ To gain knowledge about the salient features of AACR2 and CCC cataloguing codes ◆ To understand the two forms of catalogue used by most of the libraries throughout the world ◆ To gain knowledge about the difference between Catalogue and Bibliography
6.	Reference and Information Sources: Definition; Need		◆ To understand the concept of reference and information sources ◆ To know about the need of reference and information sources ◆ To gain knowledge about the various types of information sources ◆ To gain knowledge about the characteristics of primary, secondary and tertiary sources of information with examples ◆ To know about the evaluation of information sources

7.	Categories of Reference Sources: Description and Scope		◆ To understand the purpose of reference collection ◆ To gain knowledge about the development of reference collection ◆ To understand the categories of reference sources ◆ To understand the scope and features of different reference sources ◆ To know about the Online Reference Sources
8.	Computer Hardware Used in Library: Concepts		◆ To understand the need of ICT in libraries ◆ To gain knowledge about the Desktop System and its components ◆ To gain knowledge about the printers and their functionality ◆ To understand about scanner and its various types ◆ To understand various networking components ◆ To gain knowledge about the wireless technology and its tools
9.	Library Automation Software: Main Features		◆ To understand the Library Automation ◆ To gain knowledge about the need of Library Automation ◆ To understand the prime areas of Library Automation ◆ To understand the barriers in automating libraries ◆ To understand the criteria for choosing Library Automation Software ◆ To know about some prominent Library Automation Software

Content

TERM-I

TERM-II

Chapter-1

Library, Information and Society

Objectives of the Chapter

- *Development of the civilization*
- *Growth of Information and Knowledge*
- *Society and its informational needs*
- *Evolution of library*
- *Role of library in society*
- *Concept of trinity*

Content

1.1 Introduction

The information and knowledge are the driving factors in the development of a society. The human is considered the most intelligent species on the planet. It gathers the information and converts it into knowledge and further use it to improve the living standards of the people. Initially, the knowledge used to be preserved and transferred through oral traditions. When the volume of knowledge grew, people invented the mechanism of recording the knowledge through writings. The organised set of such records were called documents.

The society continued to develop and accordingly the volume of knowledge grew. Due to such developments, different civilizations emerged. With the advent of civilizations different educational, political, administrative, cultural, religious and social organisations. were established. This organisational approach of the society increased the intellectual activities of the human beings. The milestone was achieved in the history of preservation, and dissemination of information and knowledge with the invention of printing technology. Due to all these developments, quest for knowledge increased and the concept of library emerged and got institutionalized for the dissemination and presentation of knowledge so that it could be transferred to the future generations.

1.2 Definition of a Library

In English, the word "Library" means "a collection of books for study, research, reference and recreation". It is probably derived from a Latin word 'liber' which means 'a book'. The definition of library has changed functions over a period of time with the change in its. Let us see some of the definitions provided by different reference sources and the scholars of Library and Information Science.

The Oxford Dictionary defines library as "a building or room containing collections of books, periodicals, and sometimes films and recorded music for using or borrowing by the public or the members of an institution".

The Merriam-Webster's Dictionary defined it as "a place in which literary, musical, artistic, or reference materials (as books, manuscripts, recordings, or films) are kept for use but not for sale".

The Oxford Companion to the English Language says that the "library is a collection of books, periodicals and/or other materials, primarily written and printed".

The Harrold's Librarians' Glossary and Reference Book explains library as:

(a) A collection of books and other literary material kept for reading, studying and consultation

(b) A place, building, room or rooms set apart for keeping the books

(c) A number of books issued by one publisher under a comprehensive title such as 'Loeb Classical Library', and usually having some general characteristic, such as, subject, binding, or typography

(d) A collection of films, photographs and other non-book materials, plastic or metal tapes, disks and programs

The observation of definitions, provided above, make us understand a library as:

"A physical space such as a building, part of a building, room or rooms or such a place having collection or collections of intellectual or literary output of a society such as manuscripts, books, periodicals, newspapers, pamphlets, written or printed records, tape, artefacts or any literary and artistic materials for reading, reference, or lending purpose".

Initially, library was considered a storehouse of books. The main function of a library was to preserve the human thought and knowledge of a society. The 'use' or 'utilization' of the preserved knowledge was not evident. But, as the society advanced, the use of the knowledge preserved in the libraries became more evident. Hence, the definition given by S. R. Ranganathan, father of library science in India, is more appropriate from the perspective of use of library material and its preservation.

Ranganathan says "a library is a public institution or establishment charged with the care of collection of books and the duty of making them accessible to those who require to use them". Here, the term 'book' symbolizes the library collection which may be books, periodicals, or any other material kept in a library.

1.3 Purpose of a Library

The definition of a library, given by Ranganathan, helps us understand the status of a library in the society. He designates the library as a public institution. This status itself sets goals and objectives for a library. Being a public institution, it has the responsibility to serve the public without any reservation or biasness. Further, he says 'care of collection of books' which refers to the organization, maintenance and preservation aspects of the library materials so that it can serve the society or community for a longer period. The final and the most important factor in his definition is 'making them accessible'. This aspect of the definition sets an agenda to

provide service to the society. The library should be made available to the public for use or consultation.

Hence, the purpose of a library is to serve the society through the records of human thoughts, ideas and expressions by making them available as and when required by the members of the society, and preserving them for the coming generations, as these records are the intellectual wealth of the society.

1.4 Functions of a Library

As the society developed, the responsibilities of a library also increased. The functions of a library in the modern society fall under two categories, namely (i) preservation of the intellectual heritage of the society in the form of literary works which are being termed as information sources; and (ii) making these literary works accessible to the people of the society. On the parameters of these two categories, the functions of a library can be illustrated as to:

(a) collect, maintain and make the information sources available to the people of a society to help them to make themselves aware of the available literature;

(b) foster and promote the dissemination of information, and education and cultural heritage in order to promote enlightened citizenship and enrich their personal life;

(c) provide opportunity and facility for formal and informal life-long self-education to the member of a community irrespective of their age, caste, creed, colour, gender or any other human characteristic;

(d) preserve the intellectual, literary and cultural heritage of humanity for posterity as resources for research and development;

(e) provide reliable information to all citizens without any bias and prejudice.

(f) facilitate advancement of culture in a community.

The above mentioned functions of a library make it an important institution for the development of a society.

1.5 Modern Society and Library

Library and society are inter-linked and inter-dependatnt. There is a strong perception that the development in a society is not possible without a library. The society we live in today has been termed as information society as maximum population is engaged in professions where information and technologies are both

raw as well as finished products of the human efforts. The present stage of our society is the result of collective intellectual human endeavours for centuries.

The close observations of the socio-economic and cultural development of our society may give us an idea about the role of information, knowledge and library in shaping the modern society. The society has been segmented in three different phases on the development graph. This segmentation is based on the vocation and profession of the population of the society.

The first phase is known as 'agrarian society'. In this phase, the main occupation of the people was agriculture. Maximum population of the society was engaged in cultivation, fishing and mining and was using their muscular energy. The living style of the mass was simple, hence, their needs were also limited. Gradually, the population of the society increased and accordingly their needs also increased. By this time, people had started accumulating and applying knowledge to improve the human lives.

The second phase is called 'industrial society' as maximum population of the society became occupationally dependant on industries. The invention of different machines and equipments took place in the society because of the application of information and knowledge with these inventions, people started using mechanical energy instead of muscular energy. Now, the society started producing goods and products with the help of raw materials produced during agrarian activity. This phenomenon brought the industrial revolution and changed the dynamics of the society. A large number of people got engaged in the production houses. People acquired information and starting using it to improve the production of goods. The society moved from agriculture-based occupations to industry-based occupations.

The third phase of the society is being termed as 'information society'. The quest for knowledge grew more and more in people and they started putting efforts in research and development. The information became the centre of economic, political and cultural activities. Maximum population of the society got engaged in the occupations in which creation, distribution, use, integration and manipulation of information was significant. The information became both raw as well as finished product of a large number of human activities.

While analysing the growth and development of a society from agrarian to information society, we find that information and knowledge have been extremely crucial in bringing about this change. In the process of development, many institutions came into existence. Out of these institutions, the most important are the educational institutions. Initially, the educational institutions used to impart and

transfer knowledge from one generation to another using oral traditions. As the volume of knowledge grew and the human activities started getting institutionalized, people invented recording mechanism through writing and further invented printing technology for preservation and dissemination of information and knowledge.

If we visualise the picture of development of a society, we find that the whole process has revolved around information and knowledge. When the society invented the writing mechanism, libraries came in existence. After that, the libraries became the backbone of the development process.

With the various changes taking place in the scoiety, the role of library has also changed dynamically. The library in modern society is being considered a service agency. It organises and facilitates the use of information and knowledge for the development of an individual as well as the society. Pierce Butler has stated in his *Introduction to Library Science* that "the basic elements of librarianship consist in the accumulation of knowledge by society and its continuous transmission to the living generation so far as these process are performed through the instrumentality of graphic records". Here, the graphic records refer to the recorded information and knowledge as, books, periodicals, audio-visual records, etc. Here, the concept of "continuous transmission to the living generation" gives library the status of a service agency.

1.6 Information and Library

Information has always been a dynamics force in the society from early civilizations to the modern society. It has played a crucial role in the evolution process. People from different fields of studies; have tried to understand information in the context of their own area of expertise. Hence, there is no universal definition of information. However, the meaning of information can be better understood when it is discussed with its associated terms which are data, information, knowledge and wisdom. Let's discuss the concept of data, information, knowledge and wisdom, their association with one another as well as their independent existence.

In the modern society, information is being considered a vital economic resource and backbone of the growth and development of a society. People with different subject areas require information on various subjects in different forms and with different emphasis, approaches and explanations. It is used in our day-to-day life in various ways, and is also used in research and studies. For researchers, it can be considered a thing, resource or a commodity that can be produced, purchased, replicated,

distributed and communicated. Ultimately, it becomes a factor in creating knowledge.

Information is a related concept. It gets created through processing and/or analysing data and further creates knowledge. Hence, data creates information, information creates knowledge and knowledge creates wisdom

We may define Information as "the factual data, ideas and other knowledge emanating from any segment of society that are identified as being of value, sometimes gathered on a regular basis, organized in some fashion, transmitted to others and used in some meaningful manner". In other words, we can say that information is a core value or entity; gathered on a regular basis and collected in an organized manner, has some value and is a part of distribution or transmission of values. These values can be used for decision making.

Information gets generated as a result of processing data of various human or cosmic activities, events or incidents taking place purposefully or naturally. Human factor involves both individuals and corporate bodies. The Knowledge is an organised statement of facts or ideas, presenting a reasoned judgement or an experimental result, which is transmitted to others though communication in some systematic form. Information becomes knowledge when it is assimilated and shared with others. As we have studied above, data included just raw facts and figures; information assimilates the data and organize it in a meaningful manner and when this information is distributed or shared among people though communication it becomes knowledge.

Knowledge can be viewed in different ways and can be categorised broadly as personal and public knowledge. The personal knowledge is the knowledge of an individual which may be communicated to others by that individual only. The public knowledge is possessed collectively by the society. It is available to everybody in the society in the form of information products and services.

Michael Polayani has given two categories of knowledge: tacit knowledge and explicit knowledge. Tacit knowledge is the knowledge of an individual which may or may not be expressed or shared while, explicit knowledge is that knowledge which is expressed to others orally, in a recorded form or through other communication channels.

Wisdom is the highest form of knowledge which can be acquired but not transferred. It is an individual trait or expertise acquired through the application of sound knowledge, ability to see far ahead in future and capability of selecting right things from the alternatives and taking the right decision.

After analysis of data, information, knowledge and wisdom, we can say that these concepts have well-established relationship. In this series, the data possesses the least value while wisdom the highest.

1.7 Role of Library in Society

Over the centuries, library has also developed different models to serve the society. Presently, we have different types of libraries to cater the wide range of informational needs of the society. Broadly, we have three models of libraries namely (a) Academic library (b) Public library and (c) Special library. Apart from these three models or types of library, we have one unique type that is National Library. We will discuss these types of libraries in detail in Chapter-2. But altogether, the libraries play a vital role in socio-economic, political and cultural development of a community and society.

1.7.1 Role of Library in Education

Library and educational institutions are two faces of the same coin, one cannot survive without the other. The purpose of education cannot be fulfilled without a library. Library is often called a hub of educational activities and heart of educational institutions with which it is attached. The main objectives of education are imparting knowledge, inculcation of values and creation of vocational skills. These three aims are being achieved by different models of education. In modern society, there are three models of education known as: a) Formal education b) Non Formal education and c) Informal education

(a) Formal Education

The formal education system is such a system in which education is imparted through the contact of teacher and student in a school, college and university. In this system, the students are to be educated or trained on the basis of a certain curriculum for a certain period of time. After the completion of the program, within stipulated time, students are assessed and accordingly a degree or diploma is awarded to them. In the system of education, the institutions are supported by the library which provides knowledge on the subject as well as related subjects of the students' choice. In this context, library plays the following roles:

(i) Library supports the teaching and learning process at all levels of education (school, college , universities, technical or professional)

(ii) It inculcates reading habits in students and provides knowledge in the subjects of pursuits.

(iii) It helps in developing critical and analytical thinking, and develops habits of self-study.

(iv) It helps in the intellectual development of a student.

(b) Non-formal Education

Non-formal education is such a system in which a person gets educated without the help of a teacher or formal classes. In this system, students get enrolled to an academic institution for a certain educational program and complete it through self studies.

The library plays a major role in supporting the educational pursuits of such students who are getting education through this model. The public library plays a major role in supporting non-formal education system and provides the required sources as books, periodicals, etc. to these students. Everyday in the society has the right to use the library services provided by the public library. Hence, a student of non formal education completes his/her study easily with the help of a public library. Sometimes, the institutions providing non-formal education also provide library services to support the students enrolled for such educational programmes.

A library plays the following roles in non-formal education:

(i) Fulfils the informational needs of the students for completing such educational program.

(ii) Helps in self-learning and turns a students into a research.

These days, almost all the institutions of higher studies offer distance- education programmes. In such programmes, a library plays the role of both teachers as well as information resources. In this direction, public library is more important in this mode of education as the library itself becomes the teacher, guide and mentor to the students who are getting education through non-formal mode of education.

(c) Informal Education

Informal education system is such a mode of education in which a person gets information and knowledge as per his/her requirements. It doesn't have a course curriculum or structured education programme as offered in formal and non-formal education. The informal education system can be for anyone for instance, as an illiterate learns reading-writing skills and becomes can literate. Another example of informal education is a professional getting knowledge and

learning skills from other professionals in order to complete their task / project. Hence, informal education has a wide range of coverage. The library satisfies the knowledge quest of an individual for professional, spiritual or recreational purposes. It provides the opportunity of lifelong self-learning to the member of the society.

The role of library in the informal education can be listed as:

(i) Satisfying the knowledge requirement of an individual needed for personal, professional and educational development

(ii) Creating reading habits among people

(iii) Making semi-literate or illiterate person educated through library services

1.7.2 Role of Library in Research and Development

The human activities in the modern society are based on creating and utilizing information and further converting it into economic resources. Hundreds and thousands of individuals, corporative houses and government institutions are conducting researches on science and technology as well as in social science and humanities. All these researchers need information to obtain effective and fruitful results. Hence, the library provides support to the research and development work of an individual as well as institutions.

The role of a library in research and development may be listed as follows. A library:

(i) Keeps the researchers up to date with the latest development in their field of research.

(ii) Helps in selecting the research topic and assisting in the completion of their research work.

(iii) Organises programmes to make the researchers aware of the process and procedure of research and research methodology.

(iv) Provides information to avoid duplication of research.

(v) Provides bibliographical service for collecting and selecting study material.

(vi) Bridges the gap between the researchers and the experts of the research field.

The library in the institutions, which are conducting research programmes, are well equipped and full of information resources needed for research programmes of the institution.

1.7.3 Role of Library in Information Dissemination

Every individual of the society approaches a library for satisfying his/her

informational needs. For this purpose the library collects the information materials required by the various sections of the society. With the help of library services, the library disseminates the information among the individual of the society. Apart from this, the library organises seminars, workshops, exhibitions and a lot of other programs which helps people in acquiring knowledge and skills. With the help of formal and informal library services, the library disseminates information in the society either through books, journals, Periodicals etc. or by organizing programs with the help of experts of different field. The library not only disseminates information in the present society but also preserves it to disseminate it even in the future.

1.7.4 Role of Library in Promotion and Development of Culture

The library is one of the institutions which has the responsibility to preserve the cultural heritage of the society. It also preserves the artefacts, traditions, customs and history of the society and knowledge about own as well as other cultures.

Role of a library in promotion and development of culture may be listed as:

(i) It promotes reading and thinking that widens the intellectual horizons of people and develops creativity in an individual

(ii) The library enriches the culture of a society through its activities, lectures, seminars, workshops, cultural programs, exhibition, etc.

(iii) It preserves the cultural heritage of a nation, state, city, town even village or panchyat.

(iv) It educates people about local history as well as traditions.

(v) It organises different cultural programs such as exhibitions, dance, drama, concerts and different types of competitions to preserve the cultural values and traditions. For example, activities like puppet show, poetry show, exhibition of craft and art helps in promoting the tradition and culture of the society.

1.7.5 Role of Library in Recreation and Leisure

The library provides opportunity to the people of the society to utilize their leisure time in the positive manner and in creative direction. If a person has leisure time without any positive work, he/she may develop negative thinking and may even become destructive to the society, in some cases. Hence, the library plays an important role in providing positive directions to such people through books, periodicals, and popular magazines and by organising various programms. For this purpose, the library stocks, novels, other forms of literature, work of the art and other

materials which have recreational values. The cultural programs organized by the library also keeps such people engaged.

1.7.6 Role of Library in Moral, Ideological and Spiritual Development

The contents of the book have been divided into three broad categories:-

a. Inspiratory
b. Informatory
c. Recreatory

Books pertaining to religions, philosophy and related fields, which lifts the human spirit, fall under the inspiratory category.

Books pertaining to biography, history, travel, science, useful arts and sociology fall under informatory category.

Books related to fiction, drama, poetry, humour and essays are considered recreatory books.

Hence, a library plays positive roles in shaping the moral values, ideology and spiritual value of an individual through inspiratory materials.

1.8 Concept of Trinity and Library

S R Ranganathan, the father of Library and Information Science in India, introduced the concept of "trinity in library". He says that "a library is a trinity made up of books, reader and staff". According to this concept, the library has three inter-dependent components which make it a social institution. These components are books, reader and staff. The 'book' is the representative of all the materials which provide information and knowledge to people. These materials may be books, magazines, journals/periodicals, maps, charts, artefacts, audio-visual materials, etc.

The 'reader' refers to the member of the community or society who are directly or indirectly dependant on a library for their quest for knowledge. The reader group depends upon the nature of the community a library is serving. For example, the students, teachers, researches are the readers for an academic library. But for a public library, reader may be any person of the society. The researchers and scholars are the readers for a special library. Hence, for the library, reader is the client.

The staff of a library is the link between the reader and the book. They play a decisive role in establishing a contact between the information source and the reader. Without the effort of the staff, it is very difficult for the reader to get the right information at the right time.

1.9 Summary

Information and knowledge has been the driving force in the development of a society. Society has passed through three different phases namely agrarian society, industrial society and post-industrial/information society. Human being understood the power of knowledge, hence, they invented the mechanism of writing to record and document the information and knowledge they acquired. Further, they invented paper and printing technology which proved to be milestone in the human history.

Growth in information and knowledge, and birth of several institutions in the society created an institution called library. Initially, a library had the role of preserving the knowledge of the society but gradually it become a service agency and started to serve the society with its resources namely books, periodicals, etc. The role of library grew manyfold as society developed educationally, socially, economically, culturally and politically. Library has become the backbone of the modern society as it provides the means to the development process of each and every segment of the society.

1.10 Glossary

Agrarian society: A society that depends on agriculture, fishing and mining as its primary means for support and sustenance

Civilization: An advanced state of intellectual, cultural, and material development in human society, marked by progress in the arts and sciences, the extensive use of record-keeping, including writing, and the appearance of complex political and social institutions

Industrial society: A society driven by the use of technology to enable mass production, supporting a large population with a high capacity for division of labour

Information society: A society where the creation, distribution, use, integration and manipulation of information is a significant economic, political, and cultural activity

Institution: An organization founded for a religious, educational, professional, or social purpose

Intellectual heritage: Recorded and unrecorded skills, information and knowledge of the society

Knowledge society: A society which generates, processes, shares knowledge and makes it available to all the its members that may be used to improve the human condition; or serves to transform information into resources that allow the society to take effective action

Literary work: Information and knowledge in written or recorded form for preservation and dissemination

Organization: An organized group of people with a particular purpose, such as a business or government department

Post-industrial Society: The stage of a society's development when the service sector generates more wealth than the manufacturing sector of the economy

Preservation: Carefully maintaining something for longer use or to be used in future

Society: Group of people living together, sharing the same social, economic, political, cultural and geographical territory

1.11 Exercise

Very Short Answer Type Questions

1. What are the driving factors for the development of a society?
2. How were information and knowledge preserved and transmitted in the primitive society?
3. What kinds of institutions came into existence due to the development of civilizations?
4. Why did the concept of library emerge?
5. Name the three different phases of society on the basis of the vocation of people.

Short Answer Type questions

1. Define a library.
2. What is the purpose of a library?
3. Define the agrarian society.
4. Define the industrial society.
5. Define post-industrial society or information society.
6. How did the concept of library emerge?
7. Define data.
8. Define information.
9. Define knowledge.
10. Define wisdom.
11. What do you mean by tacit knowledge?

12. What do you mean by explicit knowledge?
13. How are data, information and knowledge inter-linked?
14. What do you mean by inspiratory materials?
15. What do you mean by informatory materials?
16. What do you mean by recreatory materials?
17. Define formal education?
18. What do you mean by non-formal education?
19. What do you mean by informal education?

Long Answer Type Questions

1. What are the different functions of a library?
2. How does a library play an important role in education?
3. How does a library shape the moral, ideological and spiritual aspects of a community?
4. How does a library disseminate information and knowledge in the society?
5. How does a library play an important role in research and development?
6. What do you mean by the theory of trinity? Elaborate its three components with suitable examples.
7. What is the role of a library in the promotion and development of a culture?

Chapter-2

Types of Libraries and their Role

Objectives of the chapter

- *Development of different types of libraries*
- *Public library and its role*
- *Academic library and its role*
- *Special library and its role*
- *Digital library and its characteristics*
- *Virtual library and it characteristics*

Content

2.1 Introduction

S. R. Ranganathan propounded the concept of trinity, in which it has been told that a library is the combination of three components. These three components are book, reader and staff. Books and readers are two different components which need to be brought in contact with the help of staff. Here, the book represent the information source in any form whether books, journals, periodicals, audio visual material, map, charts, and any other material which are valuable for library users.

The reader who uses the information sources of a library, represents all those people who need information and knowledge for their individual, professional, educational or recreational purposes. Hence, different set of people have different approaches towards library. It is became they need different types of information from library.

Staff is one of the important components of a library. It is the staff who brings life to a library. The staff identifies the information sources for its users and manages them in such a way that users can find the required introduction easily. If the users faces any problems in finding the required information then it is the staff who assists them in finding it. Hence, without staff, libraries would be lifeless and useless for the society.

Over the years, the society has created different institutions for different purposes. For educational needs, we have established educational institutions for different levels of education, to satisfy the educational needs of the society. We have schools, colleges, universities, and professional and technological institution. We have social and cultural organisations for the development of our society and culture.

The present society is engaged in research and development, and inventions and discovery. The research and development work in society is undertaken by different organisations worldwide. These organisations are government aided organisations, corporate houses, educational institutions, autonomous bodies and many more.

The information needs of different set of users are different in nature. To cater to the needs of different user groups, the society created different types of libraries. In the following sections, we are going to discuss different types of libraries, their features and characteristics.

2.2 Types of Libraries

In all human activities and day-to-day life, people need information and knowledge. To provide information and knowledge, we have library systems in the society. The informational needs of society differ from community to community and institution to institution. On the basis of varied informational needs of the society, different models of library have been developed. These models of library are studied under the topic 'Types of Libraries'.

Broadly, library has been grouped into four categories on the basis of their objectives and functions in the society. These categories are as follows:

1. Public library
2. Academic library

3. Special library
4. National library

2.2.1 Public library

Public library is a social institution established for providing opportunities to each and every person of the society, irrespective of their caste, creed, religion, gender, social, economic and educational status, etc., to acquire knowledge through reading materials. It is established for general public and is maintained chiefly by public fund. It is an integral part of the community, it serves.

The public library research group of the United Kingdom states that the basic aim of a public library is "to contribute to sustain the quality of life in all its aspects-educational, economic, industrial, scientific and cultural and promote the concept of democratic society in which equal opportunity exists for all, to develop into true citizens, with whole and balanced personalities leading to an increase in the sum total of man's happiness and awareness of himself, his fellow men and his environment ".

Ranganathan says that "the public libraries generate material happiness, mental jobs, and spiritual delight: they are social institution charged with the duty of providing the means for the perpetual self education of one and all: and the contribution to the circulation of the idea, the harnessing of leisure, the demand of democracy, the spreads of literary and the success of commercial and industrial organisation".

Hence, we can say that the public library is a social institution with the responsibility of providing library services to the community, without any bias and prejudice to cater to its informational and recreational needs. It provides equal opportunity to each and every member of the society to achieve success in life which ultimately contributes to the development of the society. It promotes democracy in the true sense. Inspired by the definition of democracy, given by Abraham Lincoln, the public library has also been defined as "a library, of the people, by the people, for the people."

UNESCO's Public Library Manifesto

The UNESCO's Public Library Manifesto was formulated for its member countries in 1949, to promote the public library system and make knowledge accessible to each and every member of the society. This manifesto was further revised in 1972 and was again revised in 1994 in collaboration with International Federation of Library Associations and Institutions (IFLA). The final manifesto was widely accepted by the member countries of the United Nations. The manifesto provides guidelines regarding objectives, activities and services of public library; and its funding, legislation and networks; its operations, management and implementation.

According to the manifesto, public library is the local gateway to knowledge. It provides basic conditions for lifelong learning, independent decision making and cultural development of an individual as well as social groups. This manifesto proclaims the UNESCO's belief in the public library as a living force for education, culture and information and an essential agent for fostering peace and spiritual welfare in the society.

Mission of the Public Library

The UNESCO's Public Library Manifesto provides the following key missions that relate to information, literacy, education and culture, and should be at the core of public library services:

(i) creating and strengthening reading habits in children from an early age;

(ii) supporting both individual and self conducted education as well as formal education at all levels;

(iii) providing opportunities for personal creative development;

(iv) stimulating the imagination and creativity of children and young people;

(v) promoting awareness of cultural heritage, appreciation of the arts, scientific achievements and innovations;

(vi) providing access to cultural expressions of all performing arts;

(vii) fostering inter-cultural dialogue and favouring cultural diversity;

(viii) supporting the oral tradition;

(ix) ensuring access for citizens to all sorts of community information;

(x) providing adequate information services to local enterprises, associations and interest groups;

(xi) facilitating the development of information and computer literacy skills; and

(xii) supporting and participating in literacy activities and programmes for all age groups, and initiating such activities, if necessary.

Funding, Legislation and Network

On the issue of funding, legislation and network, the Manifesto states that:

(i) the public library shall in principle be free of charge. The public library is the responsibility of local and national authorities. It must be supported by specific legislation and financed by national and local governments. It has to be an essential component of any long-term strategy for culture, information provision, literacy and education.

(ii) to ensure nationwide library coordination and cooperation, legislation and strategic plans must also define and promote a national library network based on agreed standards of service.

(iii) the public network must be designed in relation to national, regional, research and specific libraries as well as libraries in schools, colleges and universities.

Operation and Management

The manifesto further provides guidelines on operation and management of public library. These guidelines are as follows:

(i) A clear policy must be formulated, defining objectives, priorities and services in relation to the local community needs. The public library has to be organised effectively and professional standards of operation must be maintained.

(ii) Cooperation with relevant partners - for example, user groups and other professionals at local, regional, national as well as international level - has to be ensured.

(iii) Services have to be physically accessible to all members of the community. This requires well situated library buildings, good reading and study facilities, as well as relevant technologies and sufficient opening hours convenient to the users. It equally implies outreach services for those unable to visit the library.

(iv) The library services must be adapted to the different needs of communities in rural and urban areas.

(v) The librarian is an active intermediary between users and resources. Professional and continuing education of the librarian is indispensable to ensure adequate services.

(vi) Outreach and user education programmes have to be provided to help users benefit from all the resources.

Objectives of Public Library

S. R. Ranganathan, in his book "Library Manual", lays down the following objectives of the public library:

(i) It should help the life-long self-education of one and all;

(ii) It should furnish up-to-date facts and information on all subjects to one and all;

(iii) It should distribute in an unbiased and balanced way, all recorded views and thoughts to one and all, as a help in discharge of their political functions in respect of local, national and international affairs;

(iv) It should contribute to the productivity drive by informing top management of the latest trends in diverse enterprises, by ploughing back into the minds of researchers, designers, and technologists every piece of relevant new thought, promptly and pin-pointedly;

(v) It should provide one and all a harmless and elevating use of leisure;

(vi) It should preserve the literary remains of humanity for posterity, as vehicles of culture and as source materials for antiquarian research;

(vii) In general, it should work for continued social well-being, as the agency in charge of all socialised recorded thoughts.

Hence, as per model functions listed by Ranganathan, a public library has educational, informational, political, economic, industrial, cultural and antiquarian objectives.

Functions of Public Library

The public library performs different functions to achieve its objectives. These functions can be listed as:

(i) Supporting Education: The public library provides all kinds of information sources to the member of the community, it serves. It helps people in educational endeavour whether formal, informal or non-formal education. It is especially, a boon for the people who acquire knowledge through non-formal and informal education system. Its services to the community supports Adult Education and Social Education which ultimately demolishes illiteracy from the society. Because of this function, the public library is considered people's university as it provides the sources of knowledge whether printed, non-printed or any other form, to develop professional, intellectual, moral and spiritual capabilities of the members of the society.

(ii) Knowledge Preservation and Dissemination: The public library preserves the socio-cultural, historical, geographical and other categories of knowledge either produced or needed by the community, it serves. It disseminates this preserved knowledge in the community to make people aware about community, its professions and vocation, culture, customs, lifestyle, etc.

(iii) Creating Reading Habits and Love for Knowledge: The public library provides all kinds of reading materials such as books, periodicals, popular magazines, etc. which creates reading habits among the people of the community, and has positive effects on creating responsible citizens.

Apart from the functions discussed above, providing required information and knowledge to the members of the community, it serves, is the prime function of the public library.

2.2.2 Academic Library

Education and library are the two faces of the same coin. One cannot exist without the other. Hence, an academic library is an integral part of any institution of formal education. It supports the teaching-learning process of the institution it is associated with. Academic library can be defined as "a library which is associated or attached with any educational institution to support its educational programmes".

The library collection is developed depending upon the nature of the institution and its academic programmes. The students, teachers, research scholars, administrative staff and other staff members of the institution are the users of the academic library. The needs of these users dominate the collection of an academic library. The number, qualities and qualifications of the library staff of an academic library differ on the basis of the type of academic library, its users and the services, it provides.

Objectives of Academic Library

The objectives of an, academic library are to:

(i) serve the needs of the academic community;

(ii) collect and store all kinds of reading and reference material;

(iii) provide all kinds of informational materials to support the curricular requirements of the institution;

(iv) provide supporting materials for extra curricular activities;

(v) provide reading rooms for users;

(vi) render lending service appropriate to students, teachers and researchers;

(vii) provide an active reference and information service.

Types of Academic Library

Broadly, there are three types of academic libraries. These are:

(a) School library

(b) College library

(c) University library

(a) School Library

The school library is a library attached to or associated with a school to support the education system of the school. It caters to all the informational needs of the students, teachers and staff of the school. In India, there are four levels of school: primary, middle, secondary and senior secondary. The government and the agencies responsible for developing and supporting school education in India, have a policy that the school of all levels should be supported by a school library. Because of this, even primary schools are being supported by a library to serve the needs of its students, teachers and other staff members.

Objectives of School Library

The objectives of a school library are to:

(i) support the education programmes of the school;

(ii) awaken and foster interest in reading books and create reading habits among students;

(iii) nurture good moral values and principles in students to create refined and responsible citizens;

(iv) develop self-learning skills and interest in using library for solving problems;

(v) provide information on further study and vocation;

(vi) help teachers to improve their teaching skills;

(vii) inculcate communication skills through extra curricular activities like story telling, viewing and discussions on audio-visual programmes, workshops, etc.

The school libraries of all levels have almost same set of objectives as mentioned above.

Functions of School Library

The school library of all levels should develop the collection of information material to satisfy the objectives mentioned above. Apart from developing suitable collection of inspiratory, informatory and recreatory books and other materials, the academic library is supposed to perform the following functions:

(i) Lending of books and other materials;

(ii) Reading rooms with suitable furniture and lighting;

(iii) Reference services;

(iv) Guidance, counselling and advisory services.

(b) College Library

The library associated with college caters to the informational needs of the college community- students, teachers, staff of the college and alumnus. The library help in the expansion of knowledge and satisfies the quest for knowledge.

The modern society has different types of colleges. These are:

(i) Junior college;

(ii) Degree college;

(iii) Postgraduate college;

(iv) Professional college and technical college.

Objectives of College Library

The objectives of the college library, of all categories of colleges, are to:

(i) give the students, a wider and deeper understanding of the various disciplines;

(ii) help in all the educational programmes of the college;

(iii) provide guidance to students for higher studies and self-learning;

(iv) prepare the students for shouldering higher responsibilities in government departments, civic organizations, commercial establishments, business and industries, etc;

(v) prepare them for varied professions like law, medicine, engineering, technology, etc;

(vi) train them to become more enlightened, knowledgeable and responsible citizens; and

(vii) keep informed the teachers with latest updates in their respective subject area.

Functions of College Library

The functions of a college library can be listed as:

(i) developing collection of textbooks, related books, books of general knowledge, reference materials and audio-visual materials to support educational and instructional programmes of the college;

(ii) procuring popular magazines, newspapers and scholarly journals to support students and teachers in acquiring deeper knowledge their subject area and general knowledge about their surroundings;

(iii) making the library resources accessible through proper classification, cataloguing and shelving;

(iv) providing physical facilities such as functional building, furniture, equipment, reading rooms, etc. ;

(v) preserving previous years' question papers to help the students in preparing for examinations and assessments;

(vi) developing collection of inspiratory materials like fiction, poetry, biographies, travel-books, etc.;

(vii) organizing orientation programmes for new students to make them aware of the facilities and resources available in the library.

(c) University Library

The university library is an integral part of a university. The academic programmes of a university covers a wide range of disciplines and subjects. The modern universities are offering a number of academic programmes which are multi-disciplinary in nature. Apart from the academic programmes, scholars of the universities undertake research projects for acquiring degrees such as PHd, DLit, etc., as well as for the discovery and invention of new theories, principles and technology for the sake of society or for solving the problems of the society. Hence, a library becomes an essential component of the university to support its academic and research activities.

Because of the responsibilities a university library shoulders, it is considered the heart of a university, around which teaching and research revolves. According to the Association of University Teachers, "the prime function of the university library is to provide facilities for study and research for the members of its own institution".

Objectives of a University Library

The objectives of a university library are to:

(i) provide facilities for all teaching, learning, educational, and research programmes of the university;

(ii) satisfy informational needs of the students, teachers and researchers of the university;

(iii) inspire the teachers and researchers of the university to undertake research works for generating new knowledge to improve the quality of life of the people;

(iv) provide latest knowledge to the teachers in their area of teaching and research; and

(v) conserve knowledge and ideas for posterity.

Functions of a University Library

The major functions of the university library to fulfil its objectives are to:

(i) develop collections on a wide range of subjects for learning, teaching, research, publication, etc.;

(ii) organize and store the library collection with proper classification, cataloguing, shelving, etc to make the collection easily accessible to the users;

(iii) acquire materials such as books, journals, periodicals, newspapers, and others sources of information to provide latest information and knowledge on the concerned subjects;

(iv) provide reference, information and documentation services to the university community to keep them up-to-date in their area of study and research;

(v) keep pace with the development in the library management system and application of new technologies to provide better library services to the users.

2.2.3 Special Library

The special libraries are established to meet the informational requirements of the organisations they are associated with. Such organisations are devoted to Research and Development (R&D) activities. The special library procures all types of information sources such as handbooks, technical reports, state-of-the-art reports, bibliographies, current awareness bulletins, periodicals, indexes, abstracts, directories, etc., needed for the research projects of the organisation.

Definition of Special Library

The American Library Association's (ALA) Glossary of Library and Information Science defines Special Library as, "a library established, supported and administered by business firms, private corporations, associations, government

agencies, or other special interest groups or agencies to meet the information needs of its members or staff in pursuing the goals of the organisation. The scope of services is limited to the subject interest of the host or parent organisation".

Harrod's Librarians' Glossary of Terms states, "a special library is a collection of books and other printed, graphic or recorded material dealing with a limited field of knowledge and provided by a learned society, research organisation, industrial or commercial undertaking, government department or even an educational institution. It may also be a special branch of a public library serving certain interests or occupational groups such as a technical library or a special subject library, meeting the needs of all enquiries on that given subject such as music library".

A special library serves specialist users, located within a single organisation or group and is responsible for the collection, organisation, storage, retrieval and dissemination of information directly concerned and ancillary to, the work of the specialised institution with which it is attached.

Objectives of Special Library

The objectives of a special library are to:

(i) develop current as well as retrospective collection of information in core subjects based on the projects and programmes of the parent organization;

(ii) provide promptly the latest information about the significant developments in the field whenever requested by the users;

(iii) provide all types of academic, technical and documentary support to render appropriate services to the specialists.

Functions and Services of Special Library

The functions of a special library are to:

(i) select, procure, organise, store and retrieve current information required by the researchers and other users of the library;

(ii) analyse, synthesize and evaluate available information in the area of concern;

(iii) provide state-of-the-art reports, critical reviews, monographs, research reports, etc., to support the study and research programmes of the organisation;

(iv) provide indexes, abstracts and extracts for critical analyses of literature, and identify and procure relevant source of information;

(v) provide reference service such as Current Awareness Services (CAS), Selective Dissemination of Information (SDI), and Translation Services;

(vi) provide document delivery service including lending and inter library loan service.

2.2.4 National Library

The national library is the apex library in the library system of a country. It is usually created afresh or entrusted the responsibility of national library by the constitutional provision of the country. The national library of any country is the custodian of the intellectual heritage of the country. The intellectual heritage is the total information and knowledge wealth either produced within the nation; written by the national outside the country; and written by anyone on that particular nation. For example, the National Library of India, Kolkata has the responsibility to preserve the written and published materials within India, published by the Indian Nationals anywhere in the world and published by anyone about India.

Definition of National Library

S. R. Ranganathan defines the national library as "the library having the duty of collecting and preserving for posterity, the literary products of that country. It is the central station for assembling and dissemination through energy".

Further, the UNESCO defines the national library as "libraries which, irrespective of their title, are responsible for acquiring and preserving copies of all significant publications published in a country and functioning as a deposit library, either by law or under other arrangements.

Objectives of National Library

The main objectives of a National Library are to:

(i) procure all the literary output of that nation by the legal provision of the nation or other arrangements;

(ii) acquire foreign literature about that nation;

(iii) preserve the literary wealth of that nation for posterity

(iv) disseminate procured and preserved information through different services and publications;

(v) maintain the national bibliography and publish it;

(vi) coordinate with other libraries of the country to develop national library system.

Functions of national library

The comprehensive functions of a national library differ from country to country but minimum functions set by the UNESCO's General Conference (1970) are to:

(i) produce a national bibliography;

(ii) hold and keep up-to-date a large and representative collection of foreign literature including books about the country;

(iii) act as a national bibliographic centre;

(iv) compile union catalogue;

(v) publish the retrospective national bibliography.

The UNESCO conference had recommended that the libraries which may be called "National" but whose functions do not correspond to the above definitions should not be placed in the 'national library category'.

Examples of a few National libraries of the world are:

(i) The National Library of India, Kolkata. It was given the status of the National Library of India with the enactment of the Imperial Library (Change of Name) Act, 1948, and was opened for public as the National Library of India on 1 February 1953. Web address-http://www.nationallibrary.gov.in/

(ii) The British National Library, known as British Museum Library, London, UK was established by the Act of British Parliament in 1970. Web address-http://www.bl.uk/

(iii) The United States of America has not designated any library as National Library of the USA by law but the Library of Congress, Washington DC is executing all the functions of the National Library of the USA. Web address-http://www.loc.gov/index.html

Likewise, one can find about the national library of any nation from reference sources or from the internet.

2.3 Digital Library

The implications of computer and digital technologies changed the forms of information sources, and their storage and retrieval approaches. The decade of 1980 can be considered the transforming decade in the field of information publication industries. The information started to be published and distributed in electronic form. Initially, the storage media for transferring the information content were floppy disk, CD-ROM and other similar storage devices. The contents of these media

were accessible with the help of computer and special software provided by the publisher.

Further, with the improvement in the storage capacities of the storage media and the internet becoming accessible to the people in 1990s, the delivery of content through the internet, to the institutions or individual, became easy.

The publication of information sources in electronic form, became more popular around 1990s when the access devices like computer, laptop, book reader and now smartphones became cheaper and affordable to the mass. Hence, the concept of digital library came into existence.

Definition of Digital Library

The scholars have tried to define the digital library differently but the central theme of those definitions is the same. Witten and Bainbridge (2002) define the digital library as "an organized and focused collection of digital objects, including text, images, video and audio, with the methods of access and retrieval and for the selection, creation, organisation, maintenance and sharing of collection".

The partner institutions in the Digital Library Federation (DLF) say "Digital libraries are organisations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or a set of communities".

Characteristics of Digital Library

The digital library is a library which selects, collects, stores, retrieves and disseminates electronic information. Main characteristics of a digital library are to build library collection of information sources in electronic or digital form and provide services to its members using such resources. Hence, the library services are there but only the form of information sources has changed from print to electronic. The digital library uses digital technology for storing, retrieving and disseminating information.

Example:

(i) Digital Library of India: http://www.dli.gov.in/

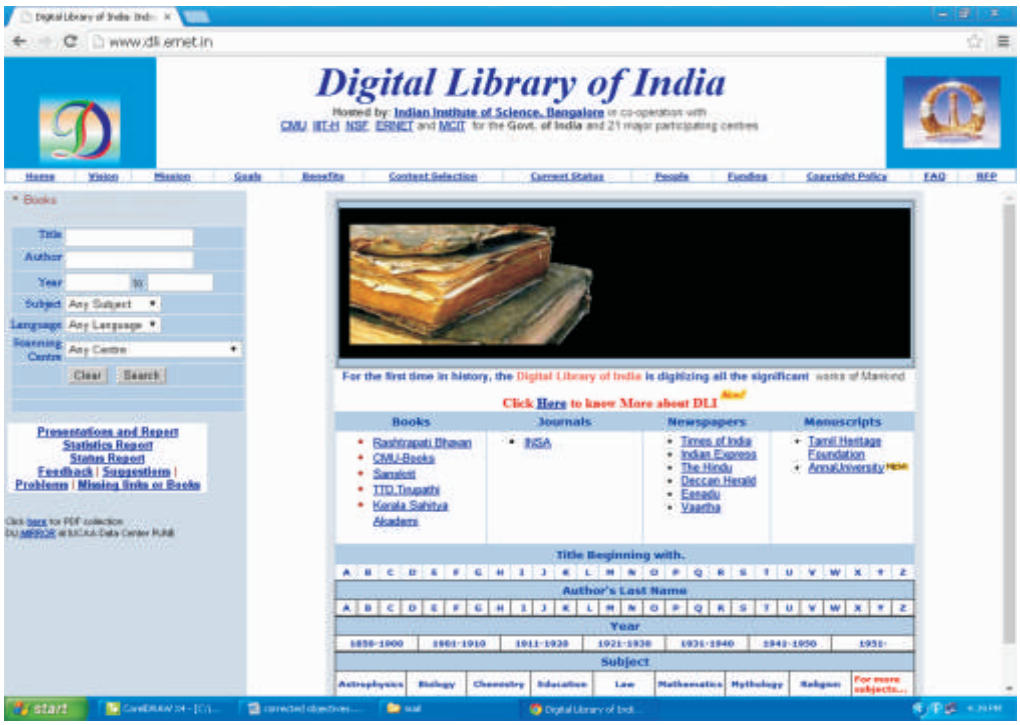


Figure 2.1: Indian Digital Library

(Source: http://www.dli.gov.in/ accessed on 19.02.2014 at 22:10hrs IST)

(ii) J. R. D. Tata Memorial Library, Indian Institute of Science, Bangalore: http://www.library.iisc.ernet.in/

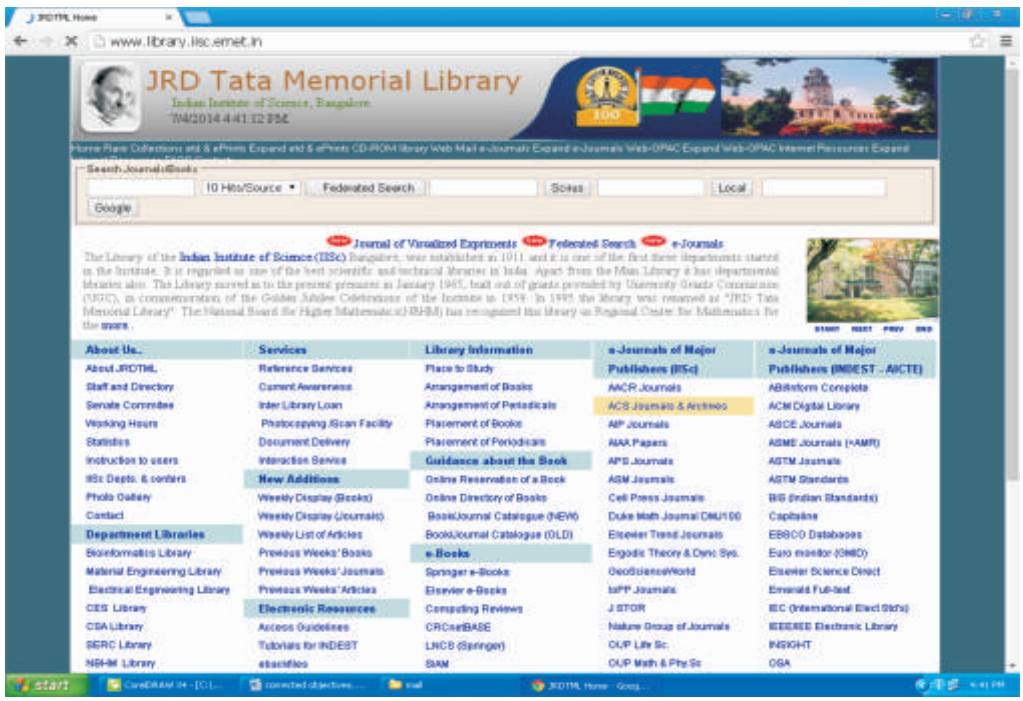


Figure 2.2: J. R. D. Tata Memorial Library

(Source http://www.library.iisc.ernet.in/, accessed on 19.02.2014 at 22:47hrs IST)

2.4 Virtual Library

Virtual library is a library without any wall. With the application of information and communication technology, the information became easily accessible. This accessibility power created the environment for such a library which can store information in digital form anywhere in the world and give access to its members through a number of electronic devices, which are capable of accessing information through network. These devices are computer, laptop, smartphone, etc. The members of the library use these electronic devices for accessing information from the library portal through the internet.

Definition of Virtual Library

Gapen (1993) defines virtual library as "the concept of remote access to the content and services of libraries and other information resources, combining and on-site collection of current and heavily-used materials in both print and electronic form, with an electronic network which provides access to, and delivery from, external worldwide library, and commercial information and knowledge sources".

Hence, virtual library has changed the concept of physical form of library. The approaches towards the accessibility of knowledge to the users and management of information sources by the staff, have completely changed in this scanario. The library staff needs to store and make knowledge content of the library, searchable and accessible through the computer and telecommunication network i.e. the internet. Now, instead of the users visiting the library for knowledge, the library itself reach the users, demolishing physical barriers of time and space.

Characteristic of Virtual Library

The main characteristic of a virtual library is that it demolishes the time and space barriers and is available 24 hours a day and 365 days a year.

Examples of Virtual Library are as follows:

(i) Indian Virtual Library: http://www.southasianist.info/india/

Figure 2.3: Indian Virtual Library
(Source: http://www.southasianist.info/india/ accessed on 19.02.2014 at 23:15 hrs IST)

(ii) The www virtual library: http://vlib.org/ provides a list of virtual libraries in different subjects or streams

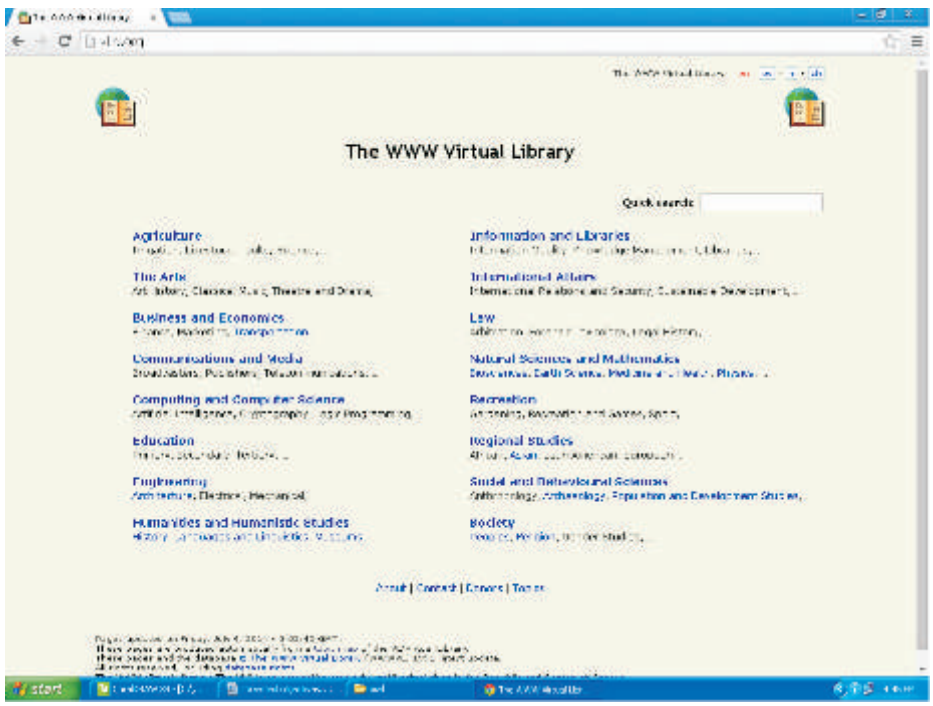


Figure 2.4: The www Virtual Library
(source: http://vlib.org/ accessed on 19.02.2014 at 23:35hrs IST)

2.5 Summary

Information and knowledge are the changing agents in a society. The need of information and knowledge has grown manyfold since the inception of civilization. Different communities need different types of information for wide range of activities and further create wealth of knowledge for the betterment of the society. To serves the information and knowledge needs of the society and further preserve knowledge for future generation, different types of library came into existence.

On the basis of the objectives and services rendered by the libraries, they have been grouped into four categories. These categories are (i) Public Library (ii) Academic Library (iii) Special Library, and (iv) National Library.

The public library serves all members of the community, irrespective of their caste, creed, colour, nationality, gender, etc. It has the objective to satisfy the information and knowledge needs of the community members. Beyond this, the public library has important roles to play in the society to make the people, knowledgeable and responsible citizens.

The academic library is the part and parces of academic institutions. The academic community of any institution needs information and knowledge to support its curricular programmes, careers and character building, and research and development work. Hence, an academic library has the objective to satisfy the quest of knowledge of the community of the academic institution, the library is attached with.

The modern society has a wide range of organisations which are engaged in specialised study and research activities. The researchers of such organisations need intensive information and knowledge in their area of study. Hence, such organisations have their own library to cater to their the information and knowledge needs. Hence, the special library is always attached to an organisation of research and development, and is completely owned, funded and managed by that specific organisation.

The national library is considered the apex library of any nation having the responsibility to preserve intellectual wealth of the nation. The national library is usually created by the legal provisions of a particular nation and has the responsibility to acquire the information and knowledge created in the nation, by the nationals living outside the country and on the nation by other nationals. It has the responsibility to create, maintain and publish national bibliography. Sometimes, a particular nation has not created such a library by the legal provisions of that nation

but a particular library executes the responsibilities of a national library. In such a case, this library can also be designated as National Library of that particular nation, for example, Library of Congress, the USA.

The information and communication technology has also changed the forms and format of information sources and the methods of dissemination. Due to the application of technology, specially computer and networking technologies, new breeds of libraries have emerged. Before the invention of computer, the information sources used to be in printed form. Now, the information sources are available in electronic form which is processed, stored, retrieved and disseminated using computer or other electronic devices and communication technology. Such libraries which have the collection of information sources in electronic form, and is serving the community is called digital / electronic library. The electronic information sources are called digital information sources as they use digital technology for storing, retrieving, and disseminating the information.

The digital information sources, and application of computer and tele-communication networks have changed the model of the libraries. Now, the concept of virtual library has emerged with the application of these technologies. The library without any physical existence, providing the library services to the community with the help of the internet, telecommunications networks and electronic devices like computer, laptop, tablets, smart phones, book readers, etc., is called virtual library.

The basic categories of libraries are the same as public, academic, special and national but if they are using the technologies to reach the members of the community then they may fall in the category of electronic (digital) or virtual library depending upon the model they adopt.

2.6 Glossary

UNESCO: United Nations Educational Scientific and Cultural Organization-an agency of the United Nations which promotes education, scientific communication, arts and culture.

2.7 Exercise

Very short answer type questions

1. What is the theory of trinity?
2. Who brings the reader and the book in contact?
3. What does a book represents in the theory of trinity?

4. Who all are the users of a library?
5. Name different types of libraries.
6. What are the different types of academic library?
7. Define a public library.
8. Define an academic library.
9. Define a special library.
10. Define a national library.
11. Define a digital library.
12. Define a virtual library.

Short answer type questions

1. What are different guidelines for funding, legislation and network of a public library in the UNESCO's Public Library Manifesto?
2. What are the objectives of academic library?
3. What are the objectives of a school library?
4. What are the objectives of a college library?
5. What are the objectives of a special library?
6. What are the objectives of the national library?
7. What are the functions of the national library?
8. Write down the characteristics of a digital library?
9. Write down the characteristics of a virtual library?
10. What are the functions of a university library?

Long answer type questions

1. What is the mission of the public library as discussed in UNESCO's Manifesto?
2. What are the objectives of a public library laid down by S. R. Ranganathan?
3. Discuss three main functions of a public library.
4. What are the functions of a college library?
5. What are the functions of a special library?

Chapter-3

Five Laws of Library Science

After studying this section, students will be able to:

- *Understand the Five Laws of Library Science;*
- *Gain knowledge about the implications of the law 'Books are for use";*
- *Understand various obligation for satisfying the second law of library science "Every reader his/her book";*
- *Understand the implications of the third law of library science "Every book its reader";*
- *Gain knowledge about the implications of the fourth law "Save the time of the reader";*
- *Understand the implications of the fifth law "Library is a growing organism".*

Contents

3.1 Introduction

The laws of Library Science govern various disciplines within the field of library science and are normally invoked when two or more commons lead to a conflict. S. R. Ranganathan formulated the Five Laws of Library Science in 1928 and published them in 1931 under the title "Five Laws of Library Science".

The five laws are:

1. Books are for use
2. Every reader his/her books
3. Every book its reader
4. Save the time of the user
5. Library is a growing organism

3.2 First Law: Books are for Use

The first law of Library Science is 'Books are for use'. No one will question the correctness of this law but the story in actual practice is different. Historically, in the 15th and 16th century in Europe, books were chained to the selves. In those days, libraries were meant for storage rather than for use. At a later stage, books were made available to those people who paid a fee, but now the book lending is free for users. Modern libraries are attractive, comfortable and a number of special services are introduced to ensure optimum utilisation of books. A modern librarian is happy when the readers make their shelves constantly empty. He/she is worried and depressed on seeing those books which remain in the library only. Librarians take initiatives to make the library a centre of intellectual achievements by increasing the use of books.

3.2.1 Implications

In order to satisfy the first law of library science, libraries have to look into a number of factors. The most prominent are:

3.2.1.1 Library Location

The resources of the library need to be fully exploited. Library has to play its vital role among intellectual users. It must be at the centre of its users community. If it is an academic library, it should be situated in the middle of the academic institution or at a distance of few minutes' walk from the teaching departments or hostels. If it is a public library, it must be located in the heart of the city. A centrally located library will

be helpful in increasing the use of books and, hence, will become the soul of the institution or city for its intellectual achievements.

3.2.1.2 Library Hours

Before the advent of this law, libraries mostly remained closed. Even when open, it was mainly to perform the dusting of books and chasing out the 'book worms'. Fortunately, in countries where the law "Books are for use" is implemented, it has changed people's mind and normally the libraries are kept open for 18 hours a day. In the majority of universities in the USA and Europe, the library is kept open round the clock.

In libraries, the opening hours of the library are according to the convenience of the library users. Academic libraries are kept open during the working hours of the institution. Most of the libraries are kept open from morning to evening. In case of public library, most of the users are workers, businessman, professionals, etc., so such libraries are kept open according to the off/free time of the users. Now-a-days, due to the impact of this culture, the majority of libraries are kept open round the clock.

3.2.1.3 Library Furniture

The impact of the first law 'Books are for use' on library furniture and internal equipments, is considerable. In the olden days, when the books were stored for preservation, the focus was to keep the maximum number of books in the least space, at the lowest cost. Hence, the books were shelved up to the roof. The implementation of the first law motivates us to provide open access of books to library users. Now, generally, the shelves are not more than 7 feet high. The space between two rows of shelves is sufficient, so that the readers and staff can move comfortably.

The Reading Room is also made attractive with hangings, flowers and pictures. The rooms are made vermin-proof and theft-proof, and are well-ventilated. The tables and chairs are comfortable and suitable for continuous sitting for long hours. The Bureau of Indian standards established standards for the design of tables and chairs for the reading room of a library under the chairmanship of Dr. S. R. Ranganathan. The first law has, thus, exercised tremendous influence on the library building and its furniture.

3.2.1.4 Library Staff

In the olden days, the librarian as a caretaker was expected to protect the books from four enemies- fire, water, vermin and man. He was just a matriculate and his pay was

low. The first law of library science directs that the libraries must have well-educated and qualified staff, so that they can provide better library services to their users.

Library professionals should not forget the noble cause of the service. Scholarship, training, emoluments and status, etc. are some essential issues for attracting qualified and sincere professionals. The staff of the library should ensure the maximum use of books by readers.

The library should try to keep a balance between the retrospective holdings and latest information bearing documents in its collection. Staff of the library should express their pleasure while providing services and express their friendly attitude. They should function as a friend, guide and teacher to their users. The efficiency of service and the ultimate success of the modern library as an agency for diffusion of knowledge depend upon the performance of its staff.

3.2.1.5 Book Selection

The first law had a tremendous impact on book-selection procedure. The librarians should perform the primary work of selecting books while keeping the present and potential needs of users in mind. In order to maximise the use of books, the librarian should select books in a suitable, informative, evaluative and inspiring way. In fact, the first law allows placing of only those books on the shelves which are regularly read, enjoyed, understood and acted upon by users. Worn out and out-of-date books should be 'weeded' out with rigidity.

In brief, the implication of the first law is profound, rich, useful and revolutionary. This law has changed the concept of librarianship as it was in the olden days.

3.3 Second Law: Every Reader his/her Book

The second law of library science has established a new concept of libraries and has inculcated the culture of libraries. 'Every Reader his/her Books' means, books for all. Books for all symbolises 'Education for All.' In the past, education was not for all, it was only for the chosen few.

The second law states that every user of the library should get the book he/she wants. This law also advocates the generalisation and democratisation of library services. In earlier days, the access to libraries and their books were only available to those few who belonged to the aristocracy and the upper classes. Now, the library services have become the basic right of all citizens, without any distinction or discrimination. Thus,

the second law 'Every Reader his/her Books' has assumed great importance in this age of democracy. The second law supports the principal of equality of opportunity for books for all and provides a suitable environment for all to learn.

3.3.1 Implications

Requirements of the readers are varied for the implementation of the law 'Every Reader his/her books'. It is the obligation of the library to provide every reader his/her books. This law has placed obligations on the state, library authority, library staff and the readers of the library.

3.3.1.1 Obligation of the State

It is the obligation of the state to provide sufficient support to its citizens for informal, continuous self-education through the network of libraries. Public libraries provide academic and literary support to a cross-section of the society, i.e., children, men, women, rich, poor, disadvantaged or challenged in anyway, to facilitate development and dissemination of knowledge.

The state maintains various library services through several provisions for library activities and organisation. Various levels of provisions for better functioning of libraries are as follows:

- State Public Library Act;
- State Library Authority;
- Local Library Authority;
- Local Library Committee and Village Library Committee;
- State Central Library;
- Finance, Accounts and Audit.

Thus, the development of the planned programmes of library services to "All", can only come from the government of the state.

3.3.1.2 Obligation of the Library Authority

The library authority should monitor the functioning of libraries and the overall system. They should try to provide prompt and free service. A well-thought legislative and co-ordinated measure on the part of the state ensuring adequate source of finance is essential, but not sufficient.

For the second law, obligation of library authorities is in respect of choice of books and the choice of the staff. These are the main functions of authorities in libraries.

To provide 'Every Reader his/her Book', the second law requires the librarians to know (i) Subject (ii) Standard (iii) Language of the books used.

The second law indicates that a library should select books on all the major occupations of its actual and potential users. The people are also likely to demand biographies and travel books. The second law also desires that the book selection should be closely connected with the exposition of language and style suited to all the intellectuals. The librarians should select and furnish books which satisfy the demands of the neo-literates as well as scholars.

Regarding the selection/appointment of staff, an adequate and competent team of library professionals is necessary for facilitating the law 'every reader his/her book'. In the absence of competent staff, a reader will not be able to utilize the library services properly.

3.3.1.3 Obligation of the Staff

The library staff has a great role to play in the success of the second law. The first law stresses the need for a well-qualified trained and well-paid staff, the second law directs the library authority to provide adequate and devoted staff to show every reader how to use books as tools. To act as the canvassing agent for the books, the staff must know the readers, must know the books and actively help every reader to find books of his or her interest.

Book selection is an important job of the library staff. The staff should build-up good collections of reference work in libraries and provide personalised service, whenever needed. In conclusion, we understand that the second law demands the staff to help the users of the libraries in locating the required books.

3.3.1.4 Obligation of the Reader

In the second law, there are certain duties/responsibilities of the users of libraries too. The users of the library should cooperate with the library staff so that the latter can provide better services. The users should have a sound knowledge of the rules and regulations of the library.

Readers should know that there are other users too in the library. It is the obligation of every reader to get only the number of books he/she is entitled to and return them on/before the due dates. The users should also have the basic knowledge of the scheme of classification used in the library and the art of using the library catalogue. They should know about reference works, bibliographies, catalogues and other library services.

3.4 Third Law: Every Book its Reader

The third law is: "Every Book its Reader". It ensures the maximum utilisation of books by the readers. This law advocates providing an appropriate reader for every book. The first law is developed to satisfy the interest of library documents, the second law is concerned with the task of finding an appropriate book for every reader and the third law expects that an appropriate reader should be found for every book. The most prominent system used by the libraries for satisfying the third law is 'Open Access System', while the other library activities related to this are shelf-arrangement, catalogue entries, reference work, publicity methods, book selection and extension work.

3.4.1 Implications

3.4.1.1 Open Access

The Open Access System provides an opportunity to see and examine the book collection with as much freedom as one has in one's own library. In an open access library, the readers are permitted to enter the stack room and browse books to select the best book/books to satisfy their requirement.

The Open Access System increases the use of books. It provides an opportunity to its readers to search for books which they never expected to find due to various reasons. With this specific support, less-used books are put to use.

3.4.1.2 Shelf arrangement

Shelf-arrangement plays a vital role in providing easy and comfortable access books to their appropriate readers. The third law emphasises the need for the arrangement of books on shelves in a classified order, based on their content. Subject-based arrangement on shelves, a special shelf for displaying recent arrivals, and novelty in the arrangement and display, attract the attention of the users.

3.4.1.3 Catalogue

It is the catalogue that gives useful bibliographic information about the library collection and helps in the selection of books. A well-planned, classified shelf arrangement is highly desirable but it is not sufficient in itself to attract readers unless it is supported by a well-developed catalogue. The third law also expects the technical staff to prepare analytical entries based on the contents of each document, for the benefit of readers.

3.4.1.4 Reference Work

The books cannot reach the hands of readers unless their content is interpreted by the reference staff. It is the duty of a reference librarians to act like marriage match-makers between books and readers. They should find a suitable reader for every book or vice versa. They should also identify all those books which are of less use or no use. This is a kind of service that the third law expects from the reference staff.

3.4.1.5 Publicity

Publicity is a powerful tool to attract the users of the library and thereby to increase the chances for every book to find its reader. Regular publicity is given through library bulletins, newspapers, magazines, printed catalogues, subject book lists, press notices, book fair, window displays, radio/TV talk, public lectures, exhibitions, demonstration tours, library week, brochures and leaflets. The library should adopt all authorised methods to attract more library users.

3.4.1.6 Books Selection

The third law has an important role in the book selection process. For satisfying the third law and fulfilling the users' demand, it is essential to examine the users' requirements and the objectives of the library. Book selection must be proper, timely and based on the local demand, local history and local needs of the users. Thus, the book selection process plays an important role in satisfying the third law of library science.

3.4.1.7 Extension Service

The extension service is a vital part of the implications of the third law. The purpose of providing extension services is to convert the library into a social centre for encouraging and inculcating reading habits and to turn a non-reader into a regular reader.

To satisfy the demand of the third law, librarians celebrate local festivals and certain national days dedicated to national leaders or ideas, and participate in local festivals. In India, where such celebrations attract huge crowds, this form of extension service has a great potential to satisfy some aspects of the third law of library science.

3.5 Fourth Law: Save the Time of the Reader

The main concern of the first three laws of library science is to facilitate access to books by their appropriate reader, and to optimise the usage of library collection. The fourth

law focuses on the services for the readers to save the time of the reader as well as staff. The law expects the reference staff to support readers from the very moment they enter the library, up to the moment they leave it, critically examining each and every process they involve themselves in, with a care to save their time.

3.5.1 Implications

3.5.1.1 Open Access System

The fourth law strongly opposes the process of 'Close Access System' as the time is an important constraint. In a closed access system, there will be loss of time while going through the library catalogues. In larger libraries, if the closed access system is followed, the unit processing time for getting the required book may be longer in comparison to that in the Open Access System. As the user, after submitting the request, is bound to wait at the counter to get the required book and it may take a longer time if the asked book is not available on the shelf and the staff is asked to give list of other related books. In the Open Access System, the user can go to the relevant shelf and browse several books and then finalise the best suited book.

3.5.1.2 Shelf Arrangement

The comfortable and useful method of shelf arrangement can save significant time of the user. Arrangement by subject has been found to be useful as it makes it easy for the reader to locate the desired book. But in some cases, the interest of the reader goes primarily by the author rather than by the subject. The method of shelf arrangement should be based on the convenience of the users.

3.5.1.3 Stack Room Guides

Proper signal guides in the stack room save the time of the user. It may be quite useful to place them at the entrance of the stack room. They should include the complete plan of the stack room indicating the disposition of every row. Every book shelf must have a separate signal guide.

3.5.1.4 Catalogue

The fourth law acknowledges the composite nature of the books. Some prominent aspects of a composite book can be highlighted only by cross-reference and analytical entries. The fourth law advises the librarian to meet the diverse needs of readers. To save the time of the reader, the library catalogue is generally divided in two parts: Alphabetical and Classified. Some libraries also have an Author-Title and Subject catalogues, altogether known as Dictionary Catalogue.

Although the library catalogue enables a reader to locate the desired book without any loss of time, yet it becomes difficult to search for a micro-document.

Further to save readers' time, the library must procure published bibliographies of individual authors, subject bibliographies, cumulative indexes to periodicals, topical bibliographies, national and regional bibliographies, union catalogues, computerised databases, etc.

3.5.1.5 Reference Services

Most of the readers require the assistance of reference staff who knows the hide-and-seek character of all catalogues and indexes, and can easily understand them. They can bring books and readers together by providing ready reference services. Reference staff can also help in the selection of books. Documentation services like indexing, abstracting, translation, reprography; information services like CAS (Current Awareness Services), selective dissemination of information, referral service, information consolidation and repackaging, etc. helps in fulfilling the requirements of the fourth law.

3.5.1.6 Issue/Return Methods

Circulation service is an important service of library. If this service is well planned and equipped, it saves the time of both the users and staff. After a number of experiments, it is brought out that Browne charging system, Newark Charging System, Ranganathan Reader ticket-Book ticket method and Detroit Self-charging System are some of the economical and time-saving charging systems. The two-card system is found to save the time of the readers over 'Day book' and 'Ledger system'. Automated circulation system is better than all other systems that save the time of the users.

3.5.1.7 Other Services

To save the time of readers, libraries provide other services like Mobile library services, Library services for special classes, etc.

3.6 Fifth Law: Library is a Growing Organism

The fifth Law is 'Library is a growing organism'. This law enunciates a fundamental rule and principle which govern planning and organisation of libraries. The fifth law handles the library as an institution which has all the qualities of a growing organism. A growing organism has the inherent feature of natural growth, deterioration, change in size, development of new shapes and forms, etc.

3.6.1 Implications

3.6.1.1 Growth

The library is a growing organism. Its growth depends on the number of readers, materials and staff. According to Dr. Ranganathan, there are two types of growth; Child growth and Adult growth. Here, the child growth is characterised by an overall growth in size and weight, while adult growth is characterised by the absence of an overgrowth. The growth of a library is very similar to the child growth in respect of reading materials and staff. It may possibly attain the adult growth, but only with respect to the number of readers.

The main components of the library organism are the books, readers and staff. A modern library is a trinity of all these components. There must be a harmonious growth among these basic components.

3.6.1.2 Reading Materials

The quality of every library service is based on a well-chosen, selective and growing collection of information and documents. The library should purchase new books, journals, audio-visual materials and other informative documents to provide informational support for teaching and research activities of the parent institution, and to fulfill the needs of the readers.

3.6.1.2.1 The Library Building

The increasing size of the library collection is one of the important aspects for growth. This type of growth is reflected in the stack room of a library. Its size, relative position, book racks, forming unit for which the stack is built, the parts of the book rack, the self-planks, label holders and all such things relating to the housing of books are examined in the light of the inevitable growth in stack. In terms of the size of library building, the librarian should provide sufficient provision not only for satisfying the present needs, but also the future needs.

The library building must have a self-sufficient system for adjusting books of fluctuating size. Being a service institution, a library may provide a number of user-based services. The design of library building must be functional in nature for providing proper space for all the services. The Periodical Room also needs a careful design in the light of the fifth law of library science. While designing the library building, new principles of architecture such as modular design need to be considered seriously.

Catalogue Room is a very important part of the library building. The catalogue room is the room in which the catalogue cabinets are kept. A standard size of a unit cabinet is 23"*28". It can hold 48000 catalogue cards. It is observed that each book may have sufficient number of cards for its proper representation. So, there must be a provision for its extension.

The fifth law also affects the physical form of the library catalogue. If a library is a growing organism, the library catalogue will also grow proportionally. If a library grows dynamically, librarian finds it difficult to administer its catalogue because of its limited identity, inflexibility and increasing cost. Other physical forms of the catalogue are shelf catalogue, loose-leaf book catalogue and one leaf one entry catalogue, but all of these are not competent enough to satisfy the fifth law of library science. Card catalogue is very useful for libraries because of its simplicity, attractiveness, cost-effectiveness and the tendency to have less chances of error, . The card catalogue has an epoch-making contribution in the library profession. It is quite valuable for preparing bibliographies, indexes and union catalogues for ensuring that the library is up-to-date and is ever expanding.

3.6.1.3 Classification Scheme

Another important matter that needs to be examined in the light of the fifth law is the classification of books. As knowledge itself is growing at a very high speed, it is necessary that the classification scheme is comprehensive, all-embracing of all past and present issues and allowing space for any possible addition of knowledge. It means that the classification must be highly flexible, expandable and hospitable, so that it can accommodate any new subject without dislocating its pre-defined sequence.

The reader is a part of trinity, where he/she is an important part of the library organisation. The growth of libraries is measured in terms of continuity, eternity and perpetuity which depends upon the growth in the number of readers. The growth of readers is examined in the light of the following factors:

(a) The size of the reading room

(b) The method of use

(c) Safeguards

The growth of the reader requires the reading room to be flexible to meet the growth of documents, furniture and accommodation of readers. The reading room should be

well- planned, attractive and comfortable with seating arrangements for painless study.

Issue Work: The increased number of readers leads to the increase in issue and return work. The size and shape of the issue counter must, therefore, be taken into consideration to meet the future growth. The issue system will also affect the size of the counter. The counter should be spacious enough to make the reader comfortable while getting their books issued and returned. The provision of property counter must be available, where readers can deposit their luggage (belongings).

3.6.1.4 Open Access

The Open access system is only a medium for facilitating the meeting of books and the readers through the fifth law. In the open access system, the readers themselves pick books of their choice, while in closed access system, it is not possible.

3.6.1.5 Circulation System

The ledger system based circulation is not sufficient for the growth of issue/return work, as it involves a number of operations in completing the process of issue/return of a book. The Browne Changing System and Newark Changing System have achieved better results in crowded libraries.

On the other hand, Ranganathan proposed the Two Card System, known as Reader's Ticket-Book Card Charging System. It is useful and the most economical charging system. These methods have solved the problem of identifying borrowers. Readers are made responsible for the books drawn on their tickets and it is their work to keep the tickets in their personal custody and prevent the use of these tickets by others.

3.6.1.6 Safe-Guards

As the number of users increases, the problems of preventing unauthorised removal of books from the library becomes an acute problem in the Open Access libraries. It necessitates some safeguards. The safeguards really ensure that all readers can leave the library through a single door, where vigilance can be exercised. The safeguards consist of the following arrangements: the entrance and exit to the library must be provided by one and only one gate door. The gate door should normally be in a closed position. It should be opened only if the counter assistant allows it. The moment reader exits it, it should automatically close/lock itself. The passage of the gate should be big/wide enough to allow one and only one reader to pass through it at a time. All other doorways and windows should be fitted with grill work, shutters,

or weld-mesh shutters; whose meshes are too small for a book to allow passing. The greatest disservice to the Open Access is its introduction without proper safeguards.

3.6.1.7 Staff

For providing quality support to the library users with regard to various library services, a library require a large number of professionally-trained personnel. For facilitating this, the library decision-maker provides the required staff. To fulfil the aim of library organisation, the librarian must keep in view three behavioural requirements:

1. Brilliant and trained people must be inspired to join the library profession and to remain in it.
2. The staff must be aware of the task for which they have been appointed.
3. Working environments must be conducive for creative, spontaneous and innovative work.

3.6.1.8 Staff Council

Dr. Ranganathan suggests the formation of a staff council to help the librarians to obtain maximum outcome of work in an efficient manner. In the constitution of the council, there should be one representative from each section of the library. The prime function of the staff council is to advise the librarian on various matters. Besides, the librarian should encourage the staff members to work with dedication through sectional meetings.

3.6.1.9 Spirit of the Hive

As a library remains open on all days for long hours, the organisation of the reference section and the direct dealing counters require skilfulness and care during interaction. Further, library professionals in such areas should work hard with a natural quality of politeness. The members of staff should inculcate in themselves the spirit of bees. It means that member of staff should be willing to co-operate with one another in every possible way.

3.7 Summary

The Five laws are the five commandments, embodying the rational for unifying the theories of library science and their formulation. Dr. Ranganathan infused a new life into librarianship and changed it into a scientific approach-based library science.

3.8 Glossary

Open Access System: In this system, a user is allowed to go inside the library stack and browse the documents.

Close Access System: In this system, users search for an entry of a document of their interest in the library catalogue, write the description on a slip and hand it over to the Stack Assistant. The Stack Assistant goes inside the stack and searches for the document in the slip and then hands over the document to the corresponding user.

Modular building design: In a modular building design, all the services of the library are independent. No service is affected due to the functionality or non-functionality of other services.

3.9 Exercise

Short answer type question

1. How is the location of a library important for popularising library use?
2. Explain the ideal opening time of the library?
3. List the criteria for furnishing library?
4. List the obligations for satisfying the second law of Library Science?
5. What are the obligations of the library authority for providing quality services?
6. How can the third law of library science be satisfied?
7. What is the role of the extension services in popularising library services?
8. How will you publicise library services?
9. List the library services that save the time of users?
10. What do you mean by a Guide? How is it useful for saving users' time?
11. Which circulation method is the best for saving time of the users? Explain
12. Discuss various types of growth in a library.
13. What are the essential qualities of a library building in terms of the fifth law of Library Science?

Long answer type question

1. Discuss the various issues involved in satisfying the first law of Library Science?

2. Explain the various obligations in the context of the second law of Library Science?
3. Explain the importance of the Open Access System in terms of the third law of Library Science?
4. How can a librarian save the time of library users? Explain
5. Discuss the various issues that establish the library as a growing organism?

Chapter-4

Theory of Classification

After studying this section, students will be able to:

- *Understand the concept of Classification;*
- *Understand the difference between Classification and other terms;*
- *Gain knowledge about the need and purpose of Classification;*
- *Gain knowledge about the DDC Scheme and CC Scheme of Classification.*

Content

4.1 Introduction

The word 'classification' comes from the Latin word "Classis". Classification, in one sense, applies to the process of arranging individual objects or ideas into groups according to their degrees of likeness, and combining these groups into larger groups. The term 'divisions' refers to the reverse procedure. Here, a single group is sub-divided according to some quality possessed, not possessed or shared in varying degrees by others. The sub-groups, thus, obtained may be further sub-divided in the same way, until further division is impossible.

In general, both the above processes are referred to as 'classification', and it is said that classification is a separating as well as grouping process; it collects like things and separates unlike things.

Classification is a process of sorting; ideas or objects are collected into groups, and these groups stand for certain qualities which its members (idea or objects) possess.

Classification not only assists memory by arranging individuals into groups, but expresses the relationships of things and ideas to one another. Classification is essentially a mental process; we group or separate according to our concepts or ideas of the individuals. The mental process of separation or grouping is called abstraction. It is an aid to the memory and reasoning power. Nothing can be identified without it. In fact, all thought and reasoning may be said to consist of classification. When we recognize "a little black dog", we distinguish the dog as an animal from all other mammals and further identify it by recognizing size and colour.

Classification is primarily a mental operation. When we say we arrange things, we mean that we place them in an order which corresponds with an idea or a series of ideas in our minds; we can not arrange things in an order which do not exist in our thought. To do this, we have a mental picture of things we have to arrange; that is an ideal arrangement. Indeed this mental process is the true meaning of classification. The actual arrangement is placing in order those objects that we can see or touch, such as mineral, botanical specimens or coins.

J. S. Jevons (Principles of Science, 1874, Vol. 2, P. 345) has assessed the relationship between science and classification in the following words: " Science is the detection of identify, and classification is placing together those objects between which identify has been detected, either in thought or in actual proximity of space. Accordingly, the value of classification is co-extensive with the value of science and general reasoning. Whenever we form a class, we reduce multiplicity to unity and detect, as Plato said, the one in the many".

The term 'classification' is used in many senses. Dr. S. R. Ranganthan has recognized five senses. Thus, this term is a homonym. The following three out of five senses have been taken from Rangnathan's Prolegomena to Library Classification, 1967.

Classification in Sense 1

Division: "The process of sorting the entities of a universe into sub-aggregates on the basis of a preferred characteristic, or putting like entities into the same sub-aggregate and unlike entities into different sub- aggregates".

Classification in Sense 2

Assortment: "The process of the division of a universe into groups plus that of arranging the groups in a definite sequence - that is of ranking - that is, assigning a rank to each resulting group".

Classification in Sense 3

Classification in Sense 2 representing each entity by an ordinal number taken out of a system of ordinal numbers, designed to mechanise the maintenance of the sequence,

i. Either when an entity has to be replaced after having been taken out of its position;

ii. Or when a new entity has to be interpolated or extrapolated in the correct place in the sequence.

4.2 The Basis of Classification

The basis of classification consists of two views. One view is that classification is based on "Type". The second view is that it is based on "Definition". "Type" is the representative member of a class possessing the characteristics dominantly. But classification by 'Type' presupposes knowledge of classification itself, because a type is found only by the knowledge of the general attributes of a class.

According to J.S. Mill, classification is based on 'Definition' which states the essential attributes or features of a class. The classifies is supposed to find out common and essential characters of objects and then they should classify according to those characters. It is presumed that scientific classification is always based on 'Definition'. Since classification by 'Type' is called general classification, the classification by 'Definition' may be called specific classification.

There is yet another basis of classification, that is, by series. This is applicable when different classes of entities possess a particular quality in common but in varying degrees. This means the arrangement of classes of entities into a series, according to the varying degrees in which these classes possess a particular quality.

4.2.1 Difference between Classification and Division

i. Classification is the process of grouping individual items into classes; or grouping classes into higher classes. However, division is more or less a reverse process. It consists of dividing classes into sub-classes and sub-classes into further sub-classes.

ii. In 'classification', we move from less general to more general or from minor extension to greater extension of classes. In division, we move from more general to less general or from greater extension to smaller extension. Therefore, classification is inductive and division is deductive.

iii. According to Dr. S. R. Ranganathan, division is putting entities into many groups on the basis of characteristics, and classification is division plus ranking the groups and arranging the groups in a definite sequence.

4.2.2 Kinds of Classification

i. Natural

ii. Artificial

A Natural Classification exhibits the inherent properties of things being classified. It depends on homology, the likeness that resides in the structure and function of the entities classified. Artificial Classification is based on an analogy, where things are classified by their external likeness and apparent purpose like color, shape, etc.

Natural Classification	Artificial Classification
It is done according to important and numerous points of similarity.	It is based on some unimportant or less important points of resemblance.
It is grouping things according to nature's plan and order.	It is grouping things according to the purpose of the individual concerned.
It is more or less an objective classification	It is more or less a subjective classification.
It is used for general purposes	It is used for specific purpose.

According to H. E. Bliss, "There are indeed two kinds of classification, on one hand, logical, natural and scientific, and on the other hand, the practical, the arbitrary, the purposive; but for library classification we should join these two hands; the two purposes should be combined". A Natural Classification may be defined as one which groups or separates a series of individuals according to the degree of their fundamental likeness or unlikeness. However, Artificial Classification is one which groups or separates a series of individuals according to some external or accidental

likeness or unlikeness. It is the result of reasoning by analogy, i.e. the likeness between individuals having a similar function, appearance or purpose.

4.2.3 Knowledge and Book Classification

Knowledge Classification	Book Classification
This type of classification arranges knowledge itself. Its substances are tangible and intangible.	This type of classification arranges the expression of this knowledge in written or other form.
It is abstract and is used only for ideas.	It is concrete and concerned with ideas in their written representation - a much more complex form.
It is based on preconceived ideas, essentially superficial, which depend upon personal or current theories and which a new doctrine might upset. Books are actual indivisible objects and their form and purpose - recreational, educational, and literary - demand special treatment in an attempt to arrange them systematically on the shelves of the library.	It is based on practical aspect or the purpose of book. It becomes a method not only of arranging ideas in the mind, but more essentially of collecting together, actual things that are used together, so that they may be found easily.

4.3 Library Classification

Library Classification has been defined by various classificationists. The aim of library classification is to arrange the available documents in the library in the most helpful and permanent order.

According to N. C. Berwick Sayers, classification is "the arrangement of books on shelves, or descriptions of them, in the manner which is most useful to those who read". Arthur Malt revises Sayer's definition as "the systematic arrangement of books and other material on shelves or of catalogue and index entries in the manner which is most useful to those who read or who seek a definite piece of information". Margaret Mann defines the classification as "the arranging of things according to likeness and unlikeness. It is the sorting and grouping of things, but in addition, classification of books is a knowledge classification with adjustments made necessary by the physical form of books".

According to Dr. S. R. Ranganathan, "it is the translation of the name of the subject of a

book into the preferred artificial language of ordinal numbers, and the individualisation of several books dealing with the same specific subject by means of a further set of ordinal numbers which represent some features of the book other than their thought content".

4.3.1 Need for Library Classification

The problem of the arrangement of a collection of books first presents itself when specific works are likely to be sought by persons other than those who collected the books. The librarian of a small library can lay his hand on any required title and requires no systematic arrangement to help him. However, users of the library, on the other hand will need to scrutinise the bookshelves to find the particular book or other material they want, and the larger the collection, the larger the search. Therefore, the librarian must use the principle of orderly arrangement to reduce the cumulative loss of time of successive readers. Any grouping is better than none, but some are better than others, it is because it breaks down the whole collection into two or more parts according to some criterion which one can apply mentally to the book one is seeking: e.g. which color group, which size group or which author group will it belong to?

The foundation of the library is the book; the foundation of librarianship is the classification. Without classification, no librarian can build up a systematic library; which represents adequately the field of human learning as it is recorded in books.

Dr. Richardson has stated, "The books are collected for use. They are administered for use. They are arranged for use; and it is use which is the motive of classification"

The library exists to provide the "right book to the right user," or, as Dr. S. R. Rangnathan puts it, "every book its reader" with the greatest possible saving of time for both staff and reader. The classification of books should assist in the realisation of this ideal.

4.3.2 Purpose and Importance of Classification

The primary purpose of classification is the arrangement of books in some order convenient to both the reader and the librarian.

J.S. Mill said that the purpose of classification is primarily "to facilitate the operations of the mind in clearly conceiving and retaining in the memory, the characters of the objects in question".

A general classification sets out to cover the whole field of knowledge whereas a special classification covers the branches of one section of knowledge.

The basic purpose of classification is to individualise each subject within its relevant class. This individualisation is only possible if each subject is given its own special name or number and that no other subject shares this number. For individualising a subject in this manner, classification must be provided with an exhaustive scheme of notation.

Following features of classification show the purpose of classification:

i. When a reader asks for a book (document) which is available in the library, it must be located immediately, even though the library may have miles of shelves of books.

ii. When a book (document) is returned to the library, its correct place on the shelves must be easily determinable so that it can be placed (and be ready) for the next user.

iii. When a new book is added to a library, it must find its proper (helpful) place among the other books on the same subject.

iv. When the first book on a new subject arrives in a library, it must find a place among the books on already existing subjects which are related to it.

Importance of library classification can be summarised as follows. It helps:

i. To arrange documents in a systematic order, which is most convenient to the reader and the library staff.

ii. To identify and locate a document on a given subject required by a user irrespective of the size of library collection.

iii. To retrieve documents from and replace the documents to the original position.

iv. To identify the appropriate place of newly-added documents among the other documents on the same subject.

v. In the compilation of statistics on issue, which reflect the pattern of use and demand of documents on different subjects. The feedback helps in the allocation of funds to various subjects and guides the book selection policy of the library.

vi. The user of the catalogue (through call number) to refer to the location of a document on the shelves.

4.4 Main Schemes of Library Classification

4.4.1 Dewey Decimal Classification (DDC)

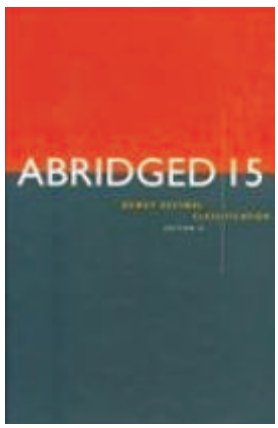
The Dewey Decimal Classification (DDC) was formulated in 1873 by Late Melvil Dewey (1851-1931. **Melville Louis Kossuth (Melvil) Dewey** (December 10, 1851 - December 26, 1931) was an American librarian and educator. The first edition

entitled "A classification and subject index for cataloguing and arranging the books and pamphlets of a library" was published in 1876. The first edition consisted of 12 pages of preparatory matter, 12 pages of tables and 18 pages of index, a total of 42 pages. Edition after edition came out with additions and alterations till the 14th edition published in 1942. The 15th edition known as "Standard Library Edition" came out in 1951. The 19th edition of 3361 pages came out in 1979. The 19th edition was in 3 volumes: Introduction, Table (Volume 1), Schedules (Volume 2) and Relative index (volume 3). The 20th edition of 3383 pages came out in 1989. The 20th edition was in 4 volumes. The subsequent editions were also published in 4 volumes. Its latest 23rd edition was published in 2011.

Melville Louis Kossuth Dewey
(1851 - 1931)
Figure 4.1

Besides the editions of this scheme mentioned above, an abridged edition of the DDC was first published in 1894. At present, the abridged version is in its 15th edition, which was published in 2012. This edition is meant primarily for use in schools and in small public libraries.

DDC 23rd Edition
Figure 4.2



DDC Abridges 15th edition
Figure 4.3

4.4.1.1 Outline

Dewey divided the field of knowledge into ten main classes as given below:

000	Generalities
100	Philosophy and related disciplines
200	Religion
300	Social Sciences
400	Language

500 Pure Sciences

600 Technology

700 Fine Arts

800 Literature

900 General Geography and History and their auxiliaries

The main classes indicate that each main class represents either a major discipline or a group of related disciplines. However, the main class 000 includes varied subjects. Each main class has ten divisions. The divisions are "the second degree of subdivision in the classification (the first degree of subdivision is one of the ten main classes), represented by the second digit in the notation. There are 100 divisions".

The ten divisions of the main class 100 are given below:

100 Philosophy

110 Meta-physics

120 Other Metaphysical topics

130 Mind and Body

140 Philosophical system and doctrines

150 Psychology

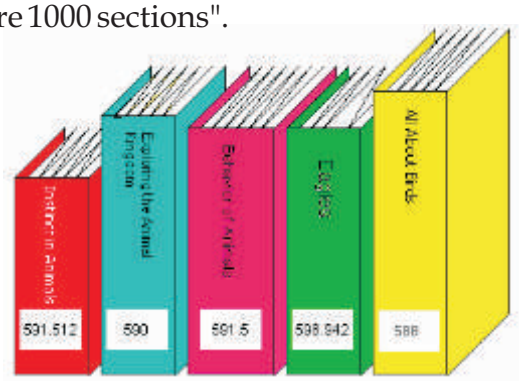
160 Logic, Dialectics

170 Ethics

180 Ancient, Medieval, Oriental Philosophy

190 Modern Western Philosophy

Each division has ten sections. The digit representing section numbers are allocated the third position in the notation. A section is "the third degree of subdivision in the classification (the second degree of subdivision is one of the ten main classes, and the first degree of subdivision is one of the 100 divisions), represented by the third digit in the notation. There are 1000 sections".



Classification Number(DDC)
Figure 4.4
DDC Class No. assigned to a title.

The number 170 represents Ethics in general. The ten sections of 170 are given below:

170	Ethics
171	Systems and doctrines
172	Political ethics
173	Ethics of family relationships
174	Economic, professional, occupational ethics
175	Ethics of recreation and leisure
176	Ethics of sex and reproduction
177	Ethics of social relations
178	Ethics of consumption
179	Other ethical norms

4.4.1.2 Salient Features

i. **Relative location:** According to Dewey's principle of relative location, subjects are ordered in a sequence, by assigning a notation to them and books are marked with his notation not shelves. By this, each book in a library secures a position in relation to other books on the same subject.

ii. **Subdivision of classes:** Each main class has ten divisions; each division has ten sections, each of which may be further subdivided ten times and so on. Provision is, thus, made for an unlimited number of subjects. Wherever practicable, heads have been so arranged that each subject is preceded and followed by its most nearly allied subjects.

iii. **Notation:** Dewey used arabic numbers for the following reasons:

- Written more quickly
- Less danger of mistakes
- Easier to remember than letter combinations.
- Some combinations of letters are odd or ridiculous.

The notation is, thus, a pure one consisting of arabic figures used decimally. A "three-figure minimum" is used consistently. The notation is infinitely expandable. If there is no blank number available, any new topic is combined with the nearest allied head, or when important enough, a place can be made by the addition of another decimal. This way, hospitality is achieved to a great extent by the character of the notation itself. Every one of main class number is divisible by 0/9 and this again by 0/9 and so on to any extent

iv. **Mnemonics:** The Decimal Classification is rich in systematic mnemonics. The systematic mnemonics reflect a constant order i.e. provision is made to get the same number wherever it may occur e.g. in literature class, poetry is always 1, Drama 2; throughout the scheme, India is always 54. These methods are called 'Form divisions and Geographic divisions'.

v. **Relative index:** The most important feature of the scheme is its index which is a relative one. Arranged in alphabetical order, it aims to include all topics expressed or implied in the main table together with every likely synonym. It is also very elaborative and is constructed with fair economy of the chain procedure. Dewey's scheme was truly modern in many respects. He anticipated many of today's developments including the principle of synthesis and facet structure, even though he did not recognize them explicitly. In addition to the above features, DDC also contains other features. These are synthetic devices, add to device, special topics for general applicability, optional provisions and above all, efforts towards universality. These features are important because they have made DDC more synthetic, mnemonic, versatile and universal.

4.4.2 Colon Classification (CC)

The Colon Classification was developed by Dr. S. R. Ranganathan. The Colon Classification was first published in 1933 with 127 pages of rules, 135 pages of schedules and an index of 106 pages. The 6th edition was published in 1960.

The 7th edition of the Colon Classification released in 1987 brings many more changes than ever contained in any previous revision of this world famous classification system.

Figure 4.5:
Dr. Shiyali Ramamrita Ranganathan
(1892-1972)

The manifold increase in the number of basic subjects; recognition of the three varieties of the category matter; use of new notational symbols, and introduction of many new basic concepts, have all ushered in many complexities in the system.

It is the first scheme entirely based on analytico-synthetic principle. This aims at analysing first the subject field into constituent elements or facets and then constructing the class number by synthesis. Dr. Ranganathan said that, in the Colon Classification, ready-made class numbers are

not assigned to topics. The schedules in the Colon Classification are said to consist of certain standard unit schedules. These standard unit schedules correspond to the standard pieces of the Meccano Apparatus. By combining these standard pieces in different objects/ways, many different objects can be constructed.

So also by combining the classes in the different unit schedules in assigned permutation and combinations, the class numbers for all possible topics can be constructed. In this scheme, the function of the colon (:) is like that of the bolts and nuts in a Meccano set.

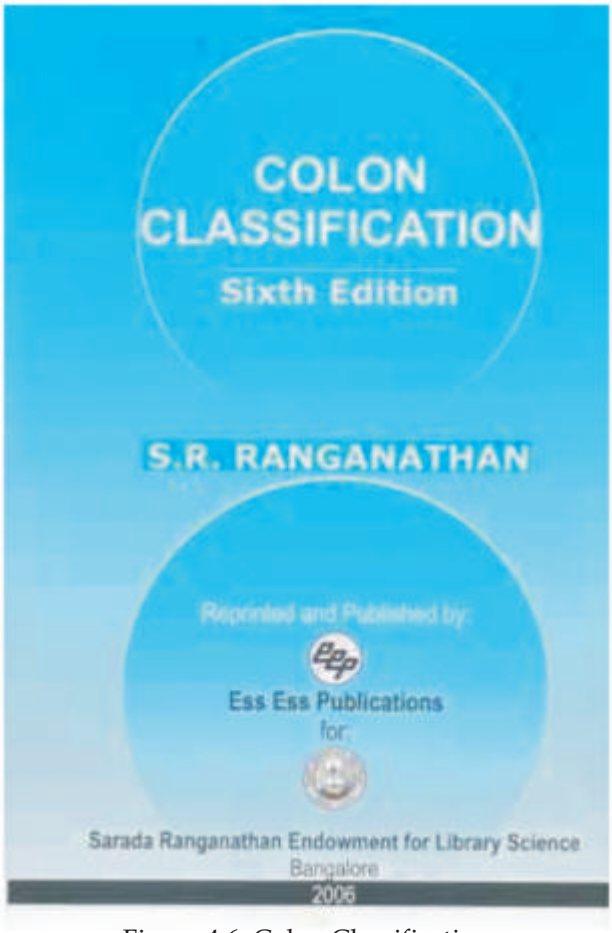


Figure 4.6: Colon Classification

The rules of classification given at the beginning of the Colon Classification appear complex, until the construction of the scheme is understood, when they are seen to be concerned with explaining the difficulties likely to be encountered in each main class.

Dr. Ranganathan provides a set of independent tables for subjects, for relations, form and other classification factors. These tables, like the parts of a Meccano set, can be used for many constructions. The colon (:) acts as the nuts and bolts.

The purpose of adopting the synthetic method is to secure co-extensiveness of subject and class-mark, minuteness of classification in most of the subjects, individualisation of every book in a library by assigning to each a specific class mark, infinite hospitality to new subjects and maximum autonomy for the classifier.

4.4.2.1 Fundamental Categories

According to Dr. S. R. Ranganathan, in any given subject, there may be a maximum of five fundamental categories. There can be less, but in no case more than five. To classify any subject, it is required that the fundamental categories in a given subject may be identified. These are Personality (P), Matter (M), Energy (E), Space (S) and Time (T). In short it is PMEST. The detail of PMEST is given below:

i. **Time (T):** This is primarily used for devoting period as it has been used in other schemes e.g. Economic Condition of India in the **19th century.** Here, the '19th Century' represents Time. The connecting symbol is a single inverted comma(').

ii. **Space (S):** This is also primarily used for devoting geographical characteristics e.g. Economic Condition of **India** in the 19th century. Here, 'India' represents Space. The connecting symbol is a dot (.).

iii. **Energy (E):** Dr. Ranganathan calls it a problem facet. It presents itself as a problem or a mode of work or approach. It is through the problems or approaches, one is to recognize the division of the Energy concept. e.g. **Teaching** of classification in the University of Delhi. Here, 'teaching' represents Energy. The connecting symbol is a colon (:).

iv. **Matter (M):** This reflects the forms it takes in various subjects. If we are classifying books on the manufacturing of paper, we require some divisions based on raw materials, these would relate to the concept matter. e.g. Use of **esparto** in paper-making. Here, 'esparto' represents Matter. The Connecting symbol is a semicolon (;).

v. **Personality (P):** Dr. Ranganathan found a way out to recognise personality by the method of residue, i.e. when it cannot be any other fundamental category, it is assigned to personality. This is used for the wholeness of any subject. e.g. 'Human body in Medicine' is the Personality.

4.4.2.2 Outline

The list of main classes recognized in CC 6th edition is given below:

Z Generalia
1. Universe of knowledge
2. Library Science
3. Book Science
4. Journalism
A Natural Science
AZ Mathematical Science
B Mathematics
BZ Physical Sciences
C Physics
D Engineering
Δ Spiritual experience and mysticism
MZ Humanities and social science
MZA Humanities
N Fine Arts
NZ Literature and language
O Literature
P Linguistics
Q Religion
R Philosophy
S Psychology
 Social Science
T Education

E	Chemistry
F	Technology
G	Biology
H	Geology
HX	Mining
I	Botany
J	Agriculture
K	Zoology
KX	Animal husbandry
L	Medicine
LX	Pharmacognosy
M	Useful Arts
U	Geography
V	History
W	Political Science
X	Economics
Y	Sociology
YX	Social Work
Z	Law Illustrative
(:g)	Criticism technique
(p)	Conference technique
(r)	Administration report technique
(P)	Communication theory
(X)	Management

Ranganathan divides knowledge into 26 branches.

4.4.2.3 Salient features

1. **Notation:** Colon classification uses a system of mixed notation. It consists of
   - Arabic numerical (0 and 1to 9)
   - Roman Alphabet (26 capital)
   - Roman Alphabet (24 small) except i & o
   - Various symbol such as (□), (:) , (-)

   The notation of CC is distinguished by the following features:
   - The notation is **faceted.** It means that it takes cognisance of change of characteristics to separate the various facets of subjects.
   - It uses **fraction principle** for both numbers and letters.
   - It is **expressive** which means that it reflects order of the subjects in their subordination and coordination i.e., expresses the hierarchy by making numbers for coordinate topics.
   - It is **synthetic** in representing a subject by analysing it into its fundamental constituent elements, synthesising a class symbol for the subject out of the elements linked.
2. **Hospitality:** The most distinctive feature of CC is its hospitality. It is the only scheme to achieve this, because Dr. Ranganathan could use successfully the decimal fraction principle and faceted notation. CC has achieved hospitality both in array and chain.

Hospitality in array: It permits extrapolation and interpolation in an array. Dr. Ranganathan used several devices to increase hospitality in array. These are as follows:

- **Octave Device:** According to this, when the classes of any array are numbered with Arabic numerals, only numbers 1 to 8 are to be used. 9 is not used ordinarily to individualise any class. The number next in order after 8 is 9 1 and not 9.
- **Subject Device:** It is used to form or sharpen a facet by adding to it (facet) another class number from elsewhere in the scheme. This device has been used in several main classes. The part of the number derived by the subject device should be enclosed in parenthesis (circular bracelets). Example, Medical College Library is 2, J3 (L).
- **Alphabetical Device:** It is used for taking the first or the first two or three letters of the names of persons, or objects or products. The device can be used, wherever warranted.

  Example: J, 381 B - Basmati Rice. (J,381 is rice and B is for Basmati).
- **Chronological Device:** The purpose of this device is to sharpen a facet number. It can sharpen and isolate or form a new isolate. This is done by employing a chronological number from the schedule of time isolate. This device can be used wherever warranted. Example, 2:51 M76 represents Dewey Decimal classification.
- **Geographical Device:** The purpose of all these devices is to form or to sharpen and isolate number in a schedule. Geographical number may be taken from the schedule of space isolate. Example, Z 44, 2 Indian Law of property.

Hospitality in Chain: This may be defined as the quality of a notation which permits arrangement of classes in successive subordination, each one being subordinated to the preceding one. It permits simultaneous specification of all the facets of a subject, if necessary and the ability to specify new facets in their correct sequence. The hospitality in chain is achieved by the following:

- **Decimal Fraction Notation:** Decimal fraction notation gives infinite extrapolation and interpolation. Similarly, letters are also used as fraction. Any class can be divided indefinitely.
- **Faceted Notation:** Faceted notation provides for the complete exhaustion

of each characteristics inturn and the marking off in the notation of each successive facet.

3. **Mnemonics:** Mnemonics are produced by using the following:

- Common Isolates: Anteriorising and Posteriorising isolates are indicated by using lower case letters. eg.

  a bibliography

  m periodical

  v history etc.

- Geographical Divisions or space isolates are denoted by number. eg.

  44 India

  441 Madras. etc.

- Language divisions or language isolates are for use mainly in the linguistics and literature class, eg.

  111 English

  15 Sanskrit

  157 Bengali

- Chronological division or Time isolates are specified as follows:

  N 20^{th} century (1900 to 1999AD)

  N3 1930

  N54 1954.etc.

4. **Index:** The index of CC is the shortest index found in any classification consisting of only 45 pages. It is relative though. The relative aspects of a subject are given in the form of class numbers. Some index of the schedules are shown under the schedule instead of enlisting them in index, eg., Botanical names after Botany class, Geographical schedules after Geography class and so on. The index has been designed entirely for the classifier and not for the readers.

4.4.3 Comparison between DDC and CC

1. **Main Outline:**

DDC: It has 10 main classes with 9 sub-classes and 9 sections of each subclass. That is to say beginning with most general subjects procedding to more specific.

CC: Main classes are comprised of Generalia (1to 9) and twenty six main classes

on both science and humanities. The first thirteen classes comprise the sciences and their applications, while the last thirteen comprise humanities.

2. **Notation:**

DDC:

- It uses Arabic numerals
- Three figure minimum notation has been used
- Notation is expansive, but not in array

CC:

- Extremely mixed consisting of Arabic numerals, roman alphabet (both capital and small) and symbol and sign including colon.
- Notation is faceted
- Synthetic
- Uses fraction principle for both numbers and letters
- Achieves hospitality both in array and chain

3. **Form Divisions:**

DDC:

- Uses a series of nine common form divisions
- These with minor alternatives are used with the same meaning throughout the scheme

CC:

- For common sub-divisions, lower case letters are used

4. **Mnemonics:**

DDC:

It makes full use of the mnemonic principle. The principal mnemonic features are:

- Form divisions
- Geographical divisions
- Language divisions

CC:

The scheme is a faceted one, and enjoys a considerable mnemonic quality by the use of the same facets and common facets.

5. **Index:**

DDC:

- DDC has Relative index.

CC:

- It is the shortest index found in any classification scheme. The index to the scheme is entirely a tool for the classifier and not for the readers. Index of some subjects have been given under schedules instead of enlisting them in the index.

4.5 Summary

The main aim of librarianship is to bring the user in contact with the document or information. Various techniques are adopted by a librarian to achieve the aim. Library classification is one such technique, which helps in the organisation of documents and information so that the user can use sources of information efficiently. Therefore, library classification is a necessity in a service library. A classification scheme is designed for the arrangement of books or other material by subject or form or both or by any recognisable logical order. The Dewey Decimal Classification fulfills the criteria of a good classification scheme. Its inclusiveness and receptiveness to new subjects are well illustrated by the increased number of pages of tables and relative index. The notation is exceptionally simple, clear and expansive with excellent mnemonic feature. In the Colon Classification, the basic classification is logical in most of its divisions, scientific in its details and scholarly in its elaboration. The facet formula helped in securing helpful order in library classification and in individualising every subject.

4.6 Glossary

Dewey Decimal Classification (DDC): The Dewey decimal classification fulfills the criteria of a good classification scheme. Its inclusiveness and receptiveness to new subjects are well illustrated by the increased number of pages of tables and relative index.

Colon Classification (CC): The basic classification is logical in most of its divisions, scientific in its details and scholarly in its elaboration. The facet formula helps in securing helpful order in library classification in individualising every subject.

4.7 Exercise

1. Define classification according to Dr. S. R. Ranganathan.

2. Differentiate between classification and division.
3. Differentiate between Natural and Artificial Classification.
4. Differentiate between knowledge and book classification.
5. Explain the need of library classification.
6. Write the purpose of library classification.
7. Write about the salient features of DDC.
8. Write about the salient features of CC.
9. Compare the DDC and CC schemes of library classification.

Chapter-5

Theory of Cataloguing

After studying this section, students will be able to:

- *Understand the meaning and definition of a library catalogue;*
- *Gain knowledge about the need, objective, purpose and functions of a library catalogue;*
- *Gain knowledge about the salient features of AACR-2 and CCC cataloguing codes;*
- *Understand the two forms of catalogue used by most of the libraries throughout the world;*
- *Gain knowledge about the difference between Catalogue and Bibliography.*

Content

5.1 Introduction

The term "Catalogue" was derived from the Greek phrase, Katalogos. Kata means "according to" and "logos" means "order" or reason.

The library catalogue is a list of books and other reading materials in the holdings of a library or a group of libraries. The list contains bibliographic details about the book and other reading material, which are useful for the users of catalogue. The details are author, title, the person or body assisting in bringing out the book, edition, place of publication, publisher, year of publication, information regarding physical details like pages, size, illustrative materials, etc. Besides these information, the catalogue also bears a location mark, usually in numerical form, by which documents can be located on the shelves. According to J. H. Shera (1956), "the library catalogue does not or should not exist as an end in itself. It is one part of the total bibliographic system and must be responsive to changes that take place in other parts of the system".

Cataloguing denotes various processes adopted in preparing entries of the reading material in a catalogue and its maintenance. Library catalogues are different from the publishers' catalogues, booksellers' lists, bibliographies, etc. All of these reference tools are useful in building up the collections through library book selection.

5.2 Library Catalogue

According to The New English Dictionary, 'A catalogue is usually distinguished from a mere list or enumeration by systematic or methodic arrangement, alphabetical or other order and often by the addition of brief particulars, descriptive or aiding identification, indicative of locality, position, data, price or the like'.

5.2.1 Definitions of a library catalogue

According to C A. Cutter, a catalogue is "a list of books which is arranged on some definite plan. As distinguished from a bibliography, it is a list of books in some library or collections".

According to Margaret S. Taylor, "Bibliography is a list of books or manuscripts on a particular subject or subjects. A catalogue is also a list but its scope is limited to a particular collection".

James Duff Brown in his Manual of Library Economy, has defined a catalogue as "an explanatory, logically arranged inventory and key to the books and their contents and it is confined to the books in a particular library".

According to Dr. S. R. Ranganathan, "A library catalogue is methodically arranged record of information about its bibliographical resources".

Therefore, a library catalogue:

i. is a list of books and other reading materials available in a particular library;

ii. contains entries prepared for all the documents according to rules prescribed in a catalogue code and organised in a systematic order;

iii. gives bibliographical information of the documents such as the author, title, edition, place of publication, publisher, date of publication in each entry in order to describe and identify the document; and

iv. gives location number of the document, such as call number of the document in order to locate the document on the shelves of the library.

5.2.2 Need for a library catalogue

A library acquires books, periodicals, serials, pamphlets, dissertations, manuscripts, maps, and other printed and non-printed materials to serve them to their users. If these documents are not organised properly, then it will become very difficult, rather impossible, to locate the document. Even if they are organized on shelves properly, no person either user or staff, will be able to know and remember what books are available in the library. It will also be difficult to ascertain, if a particular document as asked by the user, is available in the library. Thus, the very purpose for which the library has been established, will be defeated.

It is, therefore, essential that each document is listed in the catalogue in a manner which is close to users' approach. Thus, the catalogue serves as a key to the library holdings of a library.

5.2.3 Objectives of a library catalogue

Charles Ami Cutter described the objectives of a library catalogue in 1876 in his book titled "Rules for a Dictionary Catalogue".

According to Cutter, a catalogue should:

1. Enable a person to find a book of which either
   a. the author is known
   b. the title is known
   c. the subject is known

2. Show what the library has
   a. by a given author,
   b. on a given subject,
   c. in a given kind of literature
3. Assist in the choice of a book as to its
   a. edition (bibliographically)
   b. character (literary or topical)

Figure 5.1: Charles Ami Cutter

The first objective of a library catalogue is to inform the availability of a particular document in the library. The readers may access the catalogue by the name of author or title or subject.

The second objective is to show what the library has. The catalogue helps in bringing books together by the same author and on the same subject or in a given kind of literature.

The third objective is known as descriptive cataloguing. The catalogue helps to identify a document from several similar documents.

Therefore, a library catalogue is an instrument, equipped to deal with several ways of enquiry, identification and retrieval of the books and other materials.

5.2.4 Purpose of the library catalogue

The purpose of cataloging is to put library collection in order so that a specific volume may be located for reference and circulation purpose. The classifier makes it possible for books to be arranged in an orderly manner on the shelves. The cataloguer must supplement the work by listing them in the catalogue under their author, title, or subjects, to provide additional lines of approach for readers and staff members alike.

The main purpose of a library catalogue is to serve as a guide to the collection of the materials acquired for the library. Primarily, the library catalogue assists the library users in identifying the availability of the required document. It also serves users as a retrieval tool.

5.3 Function of a Catalogue

The main function of a library is to provide the required documents to the readers and it is the library catalogue that performs this function by bringing the needs of the reader with the resources of the library.

According to Dr. S.R. Ranganathan, the function of a library catalogue is "to help the exploitation of resources of the library in conformity with laws of library science".

According to Shera and Egan, two important functions of a library catalogue are:

- Accurate and speedy determination of whether or not an item known by the author or title is in the collection, and if not, where it may be found.
- What materials the library contains on a given subject and where they may be found.

In addition, a catalogue has the following functions:

- It guides the users in the selection of a document of his interest;
- It can be used as a reference tool for answering many questions of the users of documents;
- It saves the time of the readers;
- It provides other valuable information on documents besides bibliographical data for accessing and locating documents;
- It displays the library record before the readers;
- It gives the total account of the collection of a library, of an author, title and the subject, etc.

5.4 Difference between a Catalogue and Bibliography

A library catalogue and a bibliography are distinct from each other as they serve different purposes. The differences between them are given as below:

Catalogue	Bibliography
◆ It covers the reading material of a particular library. ◆ Its scope is limited to the collection of a library or a group of libraries. ◆ There is a location symbol. ◆ It is found on card. ◆ There is a particular sequence followed in a catalogue which is applied in uniformity throughout the catalogue.	◆ It is not limited to any one collection of books. ◆ Its scope is unlimited. It may be limited to a library but also covers the whole universe on a particular collection of a country or the locality. ◆ Location symbol need not be given. ◆ It is found in book form. ◆ There is sequence, but it may differ.

There is a definite distinction between bibliographies and catalogues, but there is an equally definite link between them. Bibliographers need library catalogues to help

them in their researches, and cataloguers use bibliographies for identification of publications and fact finding.

5.5 Catalogue Codes

The catalogue must be constructed on a scientific basis. It must be founded on rules and regulations that ensure uniformity and accuracy so that it may become a dependable tool. Therefore, a library catalogue code is a set of rules for the guidance of cataloguers in the preparation of entries in catalogue in order to maintain uniformity.

Salient features of main cataloguing codes:

The main cataloguing codes are AACR-II and CCC. These are explained, in detail, below:

5.5.1 Anglo - American Cataloguing Rules - 2nd Ed.

The Anglo-American Cataloguing Rules first appeared in 1967. The rules were given in two parts. Part 1 covers entry and heading consisting of four chapters, and part 2 covers description presented in 10 chapters.

Anglo-American Cataloguing Rules, second edition, i.e. AACR-II, has been jointly prepared by the American Library Association, the British Library Association, the Canadian Library Association and the Library of Congress. It was published in 1978. There are two main parts and four appendices in this code. Part one deals with description and contains 13 chapters. Part two is concerned with headings, uniform titles, and references, and it consists of 6 chapters (numbering 21-26). The four appendices have been given at the end of the code which deal with capitalisation, abbreviations, numerals and glossary. A Comprehensive index has also been provided at the end.

5.5.1.1 Features of AACR-II

- **Structure of the Rules**

  The rules for description are given is part one. The rules for the choice and rendering of various access points is given in part two. In both parts, the arrangement of rules is from general to specific.

- **Contents of Part -1**

  Part 1 contains instructions on the formulation of description of documents. The following information have been included for the rules and their description:

  I. Chapter 1: General rules for description

ii. Chapter 2: Books, pamphlets and printed sheets

iii. Chapter 3: Cartographic materials

iv. Chapter 4: Manuscripts

v. Chapter 5: Music

vi. Chapter 6: Sound recording

vii. Chapter 7: Motion pictures and video recordings

viii. Chapter 8: Graphic materials

ix. Chapter 9: Machine readable data files

x. Chapter 10: Three dimensional artifacts and radio

xi. Chapter 11: Microforms

xii. Chapter 12: Serials

xiii. Chapter 13: Analysis

Chapters 14-20 of Part 1 are left blank for future development.

Chapter 1 contains those rules that apply to all documents as it provides a brief guideline. The cataloguer will find specific treatment of certain elements in the appropriate specific chapter numbered between chapters 2 and 13.

- **Contents of Part -2**

Part 2 provides necessary rules for headings, uniform titles, and references. It consists of 6 chapters, as mentioned below:

i. Chapter 21: Choice of access points

ii. Chapter 22: Headings for persons

iii. Chapter 23: Geographic names

iv. Chapter 24: Headings for corporate bodies

v. Chapter 25: Uniform titles

vi. Chapter 26: References

The arrangement of the rules in part 2 is also from general to specific. If no specific provision exists in a particular case, the more general rules should be adhered to. The rules in this part are to be applied for all types of documents, irrespective of their physical feature.

Appendices

Abbreviations, capitalisation and numerals are given in the appendices in the code.

The code provides the instructions in the appendices as per the rules mentioned in part 1 and 2.

Glossary

A glossary of most of the technical, bibliographic and cataloguing terms, including those relating to the field of non-book materials, has been given at the end of the code preceding the index. The terms explained in the glossary have been defined in the context of the rules.

Examples

The examples used throughout the code are illustrative and not prescriptive. Therefore, neither the examples nor the form in which they are presented in the code should be taken as instructions unless the accompanying text specifically states that they should.

Index

A comprehensive index has been provided as the code. The index covers the rules and appendices, but examples have been excluded.

5.5.1.2 Organisation of AACR-II

AACR 2 divides the description into the following areas:

- Title and statement of responsibility area (Area 1)
- Edition area (Area 2)
- Material specific details area (Area 3)
- Publication, distribution, etc. area (Area 4)
- Physical description area (Area 5)
- Series area (Area 6)
- Standard number and terms of availability area (Area7)

Precede each area, other than the first area or each occurrence of a note or standard number, etc. area, by a full stop, space, dash, space(.-) unless the area begins in a new paragraph.

5.5.2 Classified Catalogue Code (CCC)

Classified Catalogue Code (CCC) was developed by Dr. S. R. Ranganathan and was first published in 1934. The 5th edition of the "**Classified Catalogue Code:** With Additional Rules for Dictionary Catalogue Code" appeared in 1964. It is a code which can be used for the preparation of classified catalogue as well as dictionary catalogue.

5.5.2.1 Features

- The classified catalogue code is free from the restriction of language, unlike the other codes in spite of their non-local nature. The CCC has achieved this by taking into account basic concepts: (a) Language of the library, (b) Scale of languages, in which the language of the library comes first and the others come in the descending sequence of interest.
- CCC is altogether a distinct cataloguing code based on canons and principles evolved by Dr. S. R. Ranganathan.
- There is special provision of rules for compilation of unions catalogues, periodical publications, national bibliographies, indexing and abstracting periodicals.
- The chain procedure is the unique device in CCC which is the most important contribution of Dr. Ranganthan to the art of cataloguing. This is a mechanical device to devise the subject headings, from class number either for class index or for subject headings, to be used for a dictionary catalogue.
- CCC attaches a lot importance to the title page and its overflow pages in order to get details to be incorporated in catalogue entries.
- Another feature of CCC is its economy. CCC does not allow the use of imprint and collation in the catalogue entry which are considered to be part and facet of an entry for identification of the documents.
- The book number constructed in accordance with the Colon Classification of Dr. Ranganathan, indicates the year of publication of the document. An additional information to the title statement of the entry in CCC is the edition of the books.

5.5.2.2 Limitations

- If lacks in providing complete bibliographical information which sometimes causes confusion and difficulties.
- No rules for cataloguing of non-book materials have been provided that are essential for cataloguing such materials.

CCC recognises the following kinds of entries in a classified catalogue:

- Main entry
- Book index entry
- Class index entry
- Cross reference entry
- Cross reference index entry

The main entry and cross reference entry are number entries. Therefore, these entries form part of the classified part.

Book index entry, class index entry and cross reference index entry are word entries. Therefore, these are included in the alphabetical part.

A main entry in CCC consists of the following sections:

- The Leading section consists of call number of the document and is always written in pencil.
- The Heading section consists of authorship.
- The Title section consists of title, edition and collaborators
- Other information is provided in the note section, if required.
- The tracing section is given on the back of the main entry. It indicates which entry is additional to the main entry and have been prepared for the given book. The purpose is to enable the removal of catalogue cards related to the main entry at the time of weeding off a book from the library.

5.6 Different Forms of Catalogues

The first thing to consider in the beginning of cataloguing is in what form it is to be adopted. The two most general accepted forms are the card form and the OPAC form.

5.6.1 Card Catalogue

A catalogue in card form is the one in which each entry appears on a separate card; in other words, each entry is a unit which can be shifted, sorted and arranged in any way desired. The card catalogue is the most widely used form throughout the world. It has got the qualities of flexibility, ease of use and economy in production and maintenance. Another advantage with this form is that it is suited to unit entry cataloguing. The standard catalogue card measuring 12.5 cm x 7.5 cm (roughly 5"x3") is used in this form. The entries are prepared on these cards in desired quantity and they are, then, arranged in the catalogue cabinet.

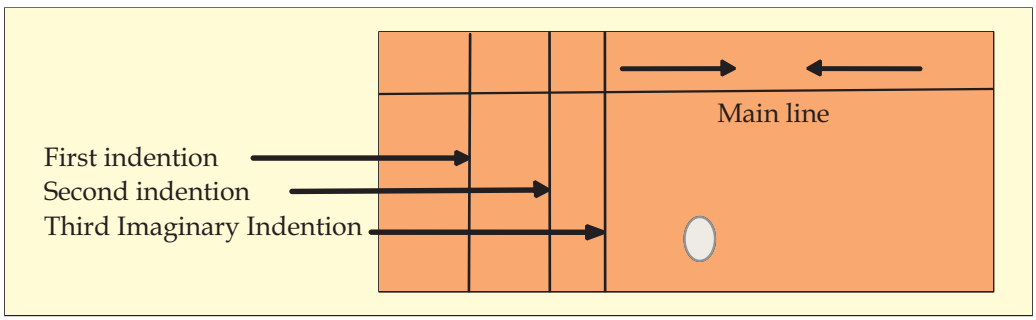


Figure 5.2: Card catalogue

1st indention: 9 spaces from left margin

2nd indention: 13 spaces from left margin

3rd indention: 15 spaces from left margin

Class No. Book No.		Added entry Second line of added entry (if necessary) Main entry heading
Acc. No.		Title proper [GMD] = Parallel title: other title/ statement of responsibility. - Edition/statement of responsibility relating to edition. - Place of publication, distribution, etc. Date of publication. Extent of item; other physical detail: dimensions + Accompanying material. - (Series; numbering).Notes. ISBN Tracing

Figure 5.3: Sample card showing three indentions

Cards arranged in alphabetical or classified order are filed in a catalogue card tray, designed to hold at least 1400 cards in upright position which are housed in card cabinets. At the bottom of the cards, there are punched holes through which passes a locking rod holding them secured together and in order. They can be shifted to and from along the rod for consultation. The card cabinets are made of steel or wood containing any number of trays in accordance with the design. Generally, cabinets are set at a height of 3' or 3' 6" above the floor.

Figure 5.4: A view of catalogue card cabinet

5.6.1.1 Merits

- The greatest advantage of the card catalogue lies in the fact that it is far from growing obsolete except by carelessness or inadvertence.
- The arrangement allows flexibility and maximum ease of insertion of new entries and withdrawal of entries of books which are lost or weeded out.
- The card is an absolutely single and self-contained unit, capable of infinite expansion and manipulation without any hindrance. Cards can easily be produced by a mechanical reproduction process or cards produced by a centralised service may be used.
- The card can be easily changed at any time by replacing new ones and the same cards can be arranged in any order.
- The card catalogue maintained in the card cabinets is easier to consult and handle, and many readers can use it at a time.
- It can be easily guided.

5.6.1.2 Limitations

- The card cabinet occupies much space and as such it creates the problem of space. Thus, the biggest disadvantage of the card catalogue is its bulk which can cause a serious accommodation problem as the catalogue grows.
- It is not portable and so it cannot be consulted like a book, at every place.
- In a busy library, when a single reader monopolises the whole tray or section of the cabinet, he/she kills the time of other readers.
- The cards can be easily removed or distracted by errant readers which can cause problems.
- Only one title can be located by the readers at a time and for others they have to see all entries. Thus, it is not economical in terms of readers' time and labour.
- These days, cards are too expensive.
- For a single book, many cards are needed to be prepared. Therefore, it is not economical in terms of time, labour and money for the library staff.

5.6.2 Online Public Access Catalogue (OPAC)

An Online Public Access Catalogue is an online database of holdings of a library or group of libraries. Readers search OPAC to find the documents available in the library. OPAC is accessible through Intranet and over the Internet. The readers may search the bibliographic database and find specific information online. The search facility provides information about the status of each item available in the library.

OPAC provides search results from the following:

- Title
- Author
- Subject
- Class number
- Publisher
- Place
- Keyword

OPAC also provides the Boolean search facility in the combinational search. The Boolean search uses the following logical connectors:

'OR', 'AND' and 'NOT'

The following screen shows the OPAC dialog box through LS Premia software of Libsys in the Planning Commission Library, New Delhi.

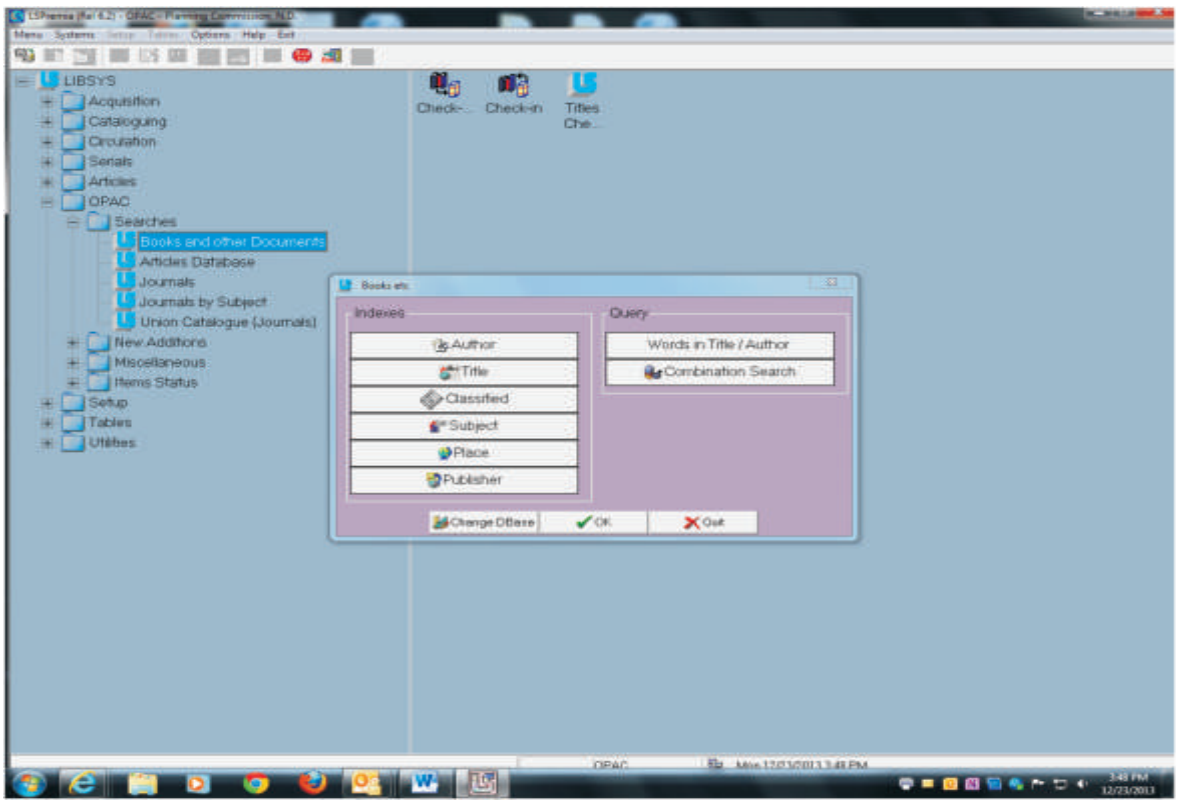


Figure 5.5: OPAC dialog box (i)

From the above, if we open the Author indexes and put the word 'Kumar' in search area and after selecting the author 'Kumar Sanjay' and click on the details, we will get the following screen:

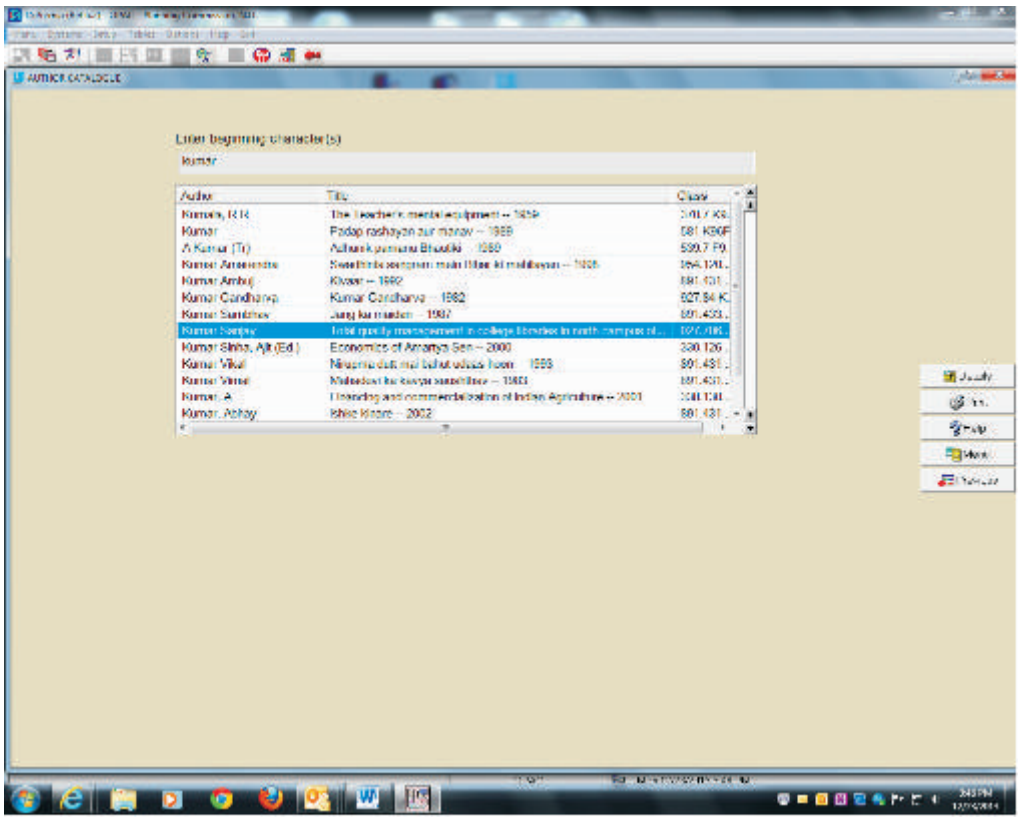


Figure 5.6: OPAC dialog box (ii)

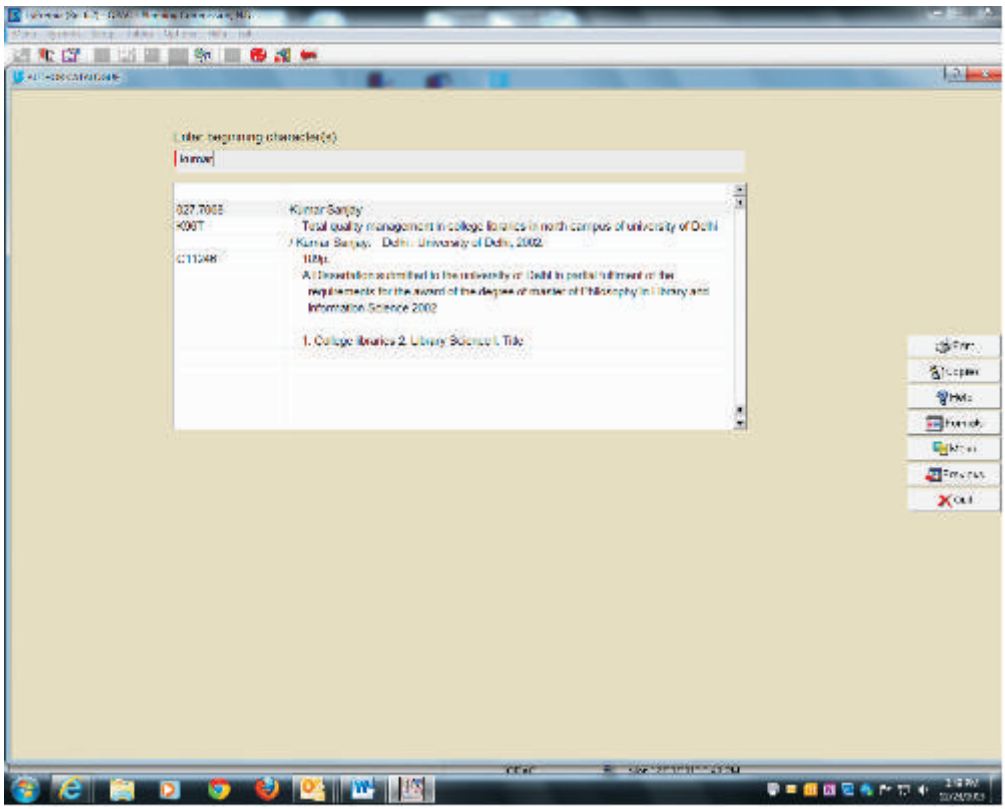


Figure 5.7: OPAC dialog box (iii)

If we search the OPAC of Planning Commission Library on the Internet, the following screen appears:

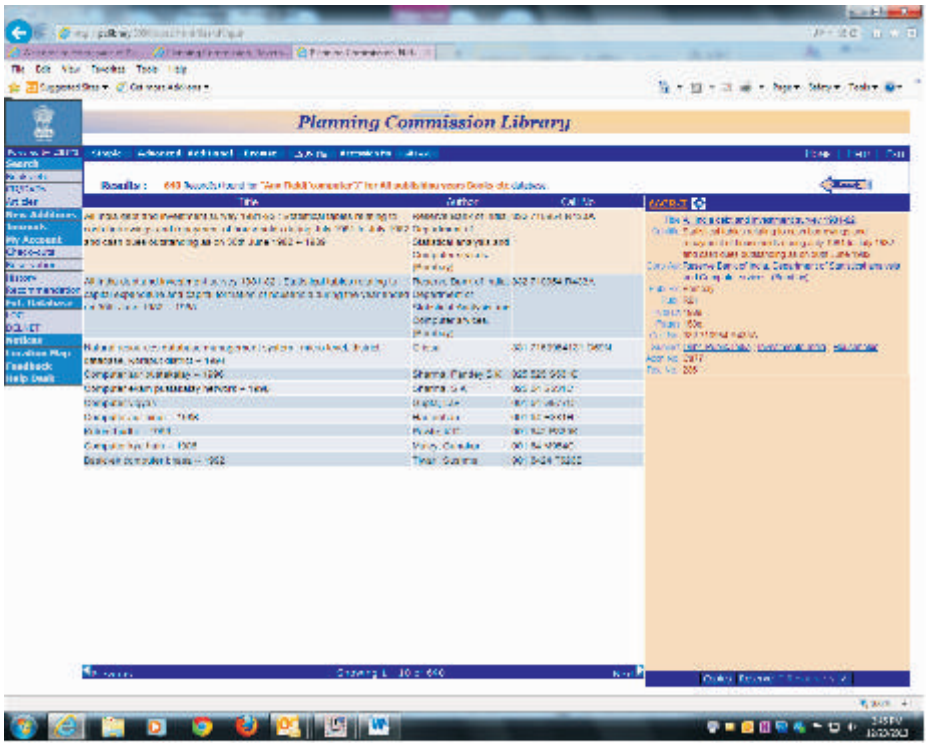


Figure 5.8: OPAC dialog box (iv)

The OPAC screen of Delhi University System appears as follows (taken from the Delhi University Website):

Figure 5.9: OPAC dialog box (v)

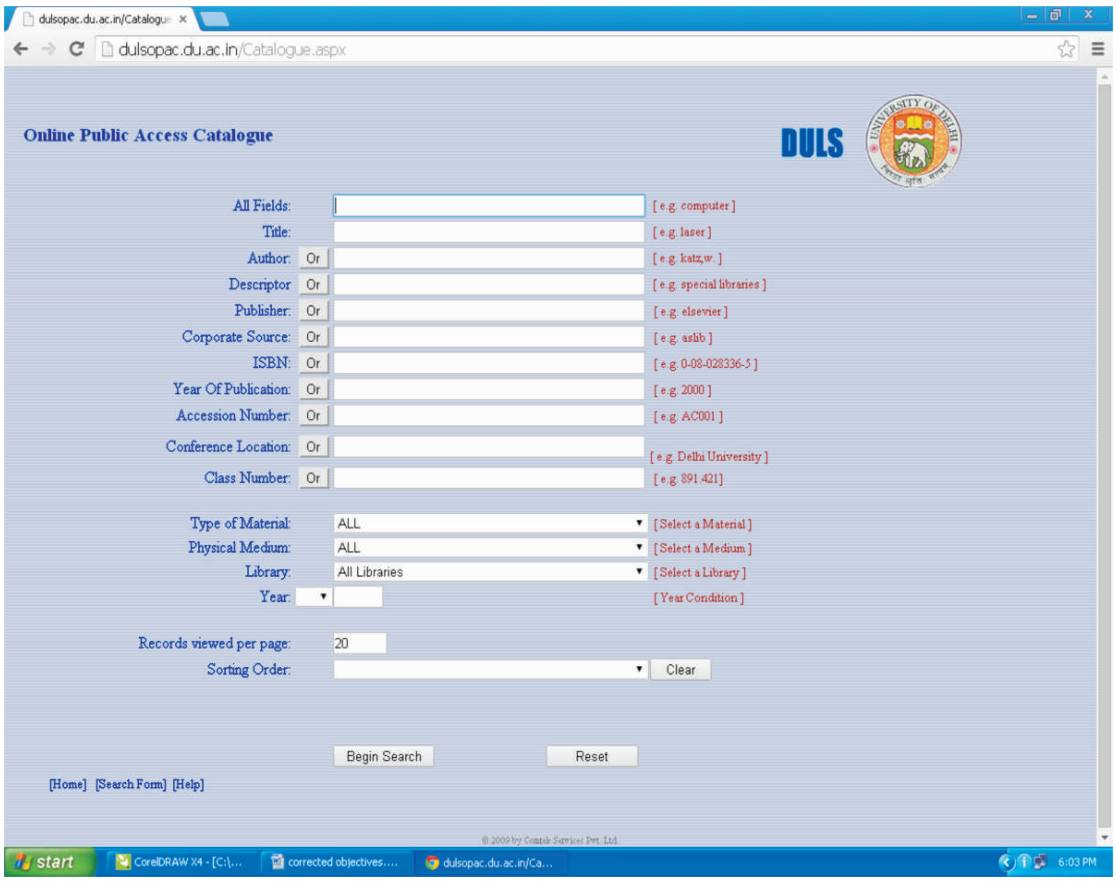


Figure 5.10: OPAC dialog box (vi)

5.7 Summary

In this chapter, we have studied definition, objective/purpose and the different functions of a library catalogue. The difference between catalogue and bibliography is also explained. The salient features of two different cataloguing codes i.e. AACR2 (Anglo American Cataloguing Rules-2) and CCC (Classified Catalogue Code) are also explained. Two different forms of catalogue i.e. Card catalogue and OPAC (Online Public Access Catalogue) have also been dealt with photographs.

5.8 Glossary

Online Public Access Catalogue (OPAC): An Online Public Access Catalogue is an online database of holdings of a library or group of libraries. Readers search OPAC to find the documents available in the Library.

Card Catalogue: A catalogue in card form is one in which each entry appears on a separate card; in other words, each entry is a unit which can be shifted, sorted and arranged in any way desired. The card catalogue is most widely used.

5.9 Exercise

1. Define a library catalogue.
2. Enumerate the objective of a library catalogue as described by C. A. Cutter.
3. Discuss the need and purpose of a library catalogue.
4. What are the different functions of a library catalogue?
5. Differentiate between a catalogue and a bibliography.
6. Write the salient features of AACR-II.
7. Write the salient features of CCC.
8. Write the limitations of CCC.
9. What are the different kinds of entries in CCC?
10. What are the different sections in the main entry of CCC?
11. Explain the card form of catalogue.
12. Write the merits and demerits of catalogue cards.

Chapter-6

Reference and Information Sources

After studying this session, students will be able to:

- *Understand the concept of an information source;*
- *Study the need of information sources;*
- *Learn about various types of information sources;*
- *Study the characteristics of Primary, Secondary and Tertiary sources of information with examples;*
- *Learn about the evaluation of an information source.*

Contents

6.0 Introduction

The source of information on any subject is the literature produced on it. The term 'literature' was earlier defined as the published writings in a particular style on a particular subject. The growth rate of information is exponential. Studies show that

the rate of the growth of literature in science is doubling every 5.5 years. In social science, the quantum of literature is doubled every 8 to 12 years. The literature produced now is diverse, complex and multilingual in nature. It is becoming more interdisciplinary, and diverse in formats and platforms available. The technologies and tools to store and access this information are also getting updated quickly. So, any literature produced on any subject becomes the source of information which is used by people as per their varying needs.

Traditional information sources are books, periodicals and newspapers. Major part of all transactions of information is taking place through these media. But the advent of online information sources in the last decades of 20th century and its proliferation through internet, redesigned the information landscape. The present decade witnesses a large number of handheld devices by which one can easily search and retrieve information available in different formats. Unpublished information is also a great source for scholars where pertinent pieces of information are exchanged informally. So, people use various sources of information as per their specific needs.

6.1 Need for Information Sources

We are living in an information society where creation, distribution, usage, integration and manipulation of information is considered the most important activity. The information becomes a resource as well as one of the most valuable commodities. To prosper in any field of human life, one requires the right information at the right time. We may say, the one who possesses the right information holds extreme power. The ability to know what information is needed, where it is available; how it can be retrieved and used make one competent in the information society. Companies, institutions and even countries, developed sophisticated information management systems to control and access the most valuable resource called information.

When we think about information professionals or simply librarians, who handle these huge packets of information in multiple formats, it is assumed that he/she should hold two qualities. The knowledge about the area of study and the skills to process and retrieve the relevant sources of information effectively. The users with varied information needs and those who are not conversant with searching and retrieval techniques require proper guidance to find the accurate information stored in different information sources.

The above discussion shows why people need information and how library professionals can or must guide them to find the relevant source of information.

6.2 Types of Information Sources

Information sources are broadly divided into two parts, based on their physical characteristics: documentary sources and non-documentary sources.

Documentary sources: Documentary sources of information are basically "documentary" in nature. They are derived from or pertaining to documents and are records relating to individuals or groups of individuals. These records have been generated by people in the course of their daily lives.

Examples: Encyclopaedias, dictionaries, manuals, textbooks, etc

Based on the originality of the materials, documentary sources can be categorized into three categories. They are:

i. Primary Sources (e.g. periodicals, diaries, research reports, etc.)

ii. Secondary Sources (e.g. reference books (dictionaries, encyclopaedias, indexes, bibliographies, etc.) and

iii. Tertiary Sources (e.g. bibliography of bibliographies, directories, etc.)

The definition of primary and secondary sources may vary depending upon the discipline. Sometimes, a primary source may be considered secondary. It means there is no clear cut demarcation among the categories. We will learn in detail about this in the further sections.

Non-documentary sources: Non-documentary sources include (i) formal and (ii) informal sources. Formal sources include research organisations, societies, universities, government departments, etc. Conversation with colleagues, visitors and attendance at professional meetings, etc. come under the category of informal sources.

6.3 Information Sources as Reference Sources

To understand the concept, let us take the example of a book, which is the basic source of any information. There are two categories of books: those which can be read through for information or education or inspiration and *the ones which are meant to be consulted or referred to for a definite piece of information.* The second category is called a reference book. Examples include encyclopaedias, dictionaries, yearbooks, handbooks, etc. So, a book is an information source but some books, which are meant to be consulted or referred, are termed as reference books or sources.

It is interesting to note that all reference sources are information sources, but all information sources are not reference sources. A reference document must be written

by people or organizations with authority in the field. A good library must have a well-organized collection of reference sources. The concept of a reference source is defined in the following section.

6.4 Reference Sources: Definition

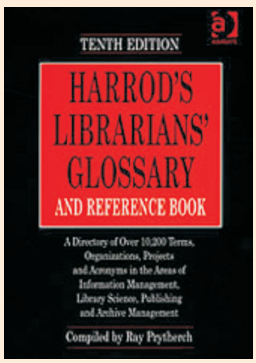
Although the materials in a reference collection vary in its format, to understand the concept historically, here we consider the definition of the term in connection with the most common format, i.e., a reference book.

The ALA Glossary of Library and Information Science (1983) gives the following definitions of a reference book.

i. A book designed by the arrangement and treatment of its subject matter to be consulted for definite items of information rather than to be read consecutively

ii. A book whose use is restricted to the library building

An all-inclusive definition was later given in the *Harrod's Librarians' Glossary and Reference Book as* "any material, published work, database, website, etc. which is used to obtain authoritative information."



Harrod's Librarians' Glossary and Reference Book is a directory of over 10,000 terms, organisations, projects and acronyms in the areas of Library Science, Information Management, Publishing and Archive Management. The latest edition (10th) was published in 2005 by Ashgate Publisher, Yorkshire, and edited by Ray Prytherch. The book is considered one of the most important sources of reference for the library profession.

Source: http://www.ashgate.com

The reference materials organised in a library shall be supplemented by additional resources available in alternative or multiple formats and also available in free or open domains or on a virtual reference environment.

6.5 Types of Reference and Information Sources: Characteristics and Examples

We may see that most of the reference sources are coming under the category of secondary and tertiary sources of information. Together, we can call these sources as reference and information sources. We will study in detail the characteristics of all these documentary sources of information.

As an introduction, examine the image given below (Figure 1), where three manifestations of the same event are represented as three sources of information: primary, secondary and tertiary.

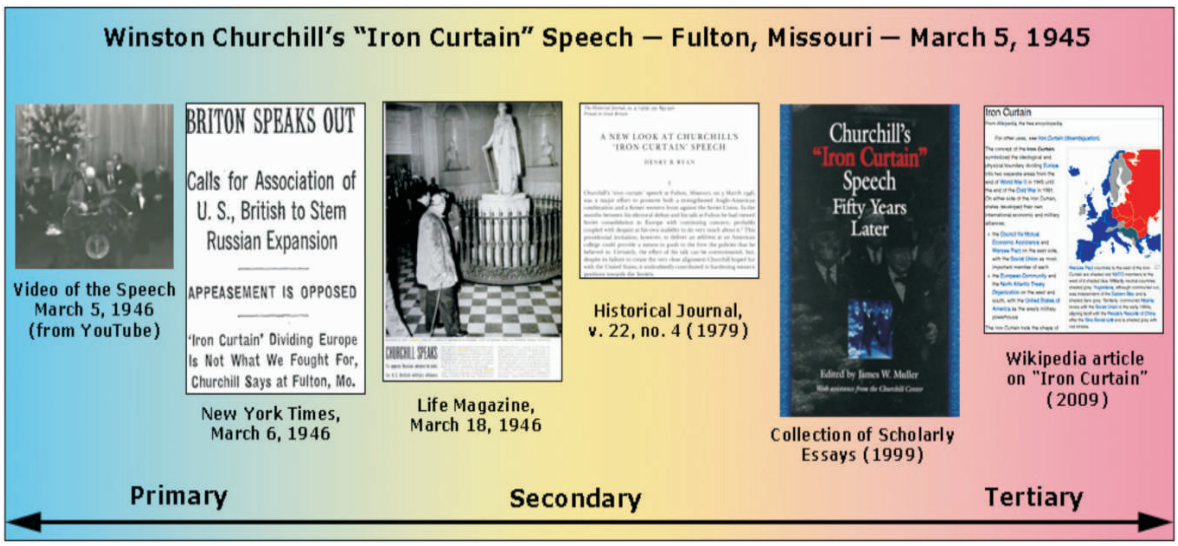


Figure 1: Flow from primary to secondary and tertiary resources: A time line

The video and newspaper story on Winston Churchill's "Iron Curtain" speech were primary sources of information on the event. A magazine report and a journal article written on the same event based on the primary sources are considered as secondary sources of information. Whereas, the speech as part of a book and a Wikipedia article, both help researchers to find primary and secondary sources, thus, these are considered tertiary sources of information.

A detailed study of all the three types of reference and information sources is given in the following sections.

6.5.1 Primary Sources

Primary Sources are first hand and original materials. This type of information is from the time period involved and has not been filtered through any interpretation. They are usually the first formal appearance of results in physical, print or electronic format on which other researches are based. They present original thinking, report a discovery, or share new information. Primary sources are unorganized or uninterpreted sources, which are rather difficult to use by themselves.

Examples:

i) Artifacts, an object made by a human being, typically one of cultural or historical interest (e.g. coins, plant specimens, fossils, furniture, tools, clothing, etc.);

ii) Audio recordings (e.g. radio programs);

iii) Diaries/journals;

iv) Internet/digital communications on email, list-server, online social networks, SMS, online chat transcripts;

v) Interviews (e.g., telephone, online interviews (via e-mail or via chat technology);

vi) Articles published in peer-reviewed journals or publications;

vii) Letters;

viii) Articles in newspapers written at the time;

ix) Serial publications (Periodicals): These include journals, transactions, proceedings or similar works, which appear regularly and continuously in numbered sequence, e.g., Nature, Historical Journal

x) Oral history (i.e., records of interview, legal proceedings)

xi) Original documents (i.e. birth certificate, will, marriage certificate, trial transcript);

xii) Patents;

xiii) Standards;

xiv) Research monographs; (separately published reports on original research)

xv) Photographs;

xvi) Proceedings of meetings, conferences and seminars, symposia;

xvii) Records of organisations, government agencies (e.g., annual report, treaty, constitution, government document);

xviii) Speeches (i.e., transcripts or recordings);

xix) Survey Research Statistics (e.g., market surveys, public opinion polls);

xx) Video recordings (e.g., live events, television programs);

xxi) Works of art, architecture, literature, and music (e.g., paintings, sculptures, inscriptions on tombstones, musical scores, buildings, novels, poems);

xxii) Ephemera (e.g., brochures, pamphlets, postcards, program sheets, advertisements);

xxiii) Website (i.e., sites, blogs, social networks).

6.5.2 Secondary Sources

Secondary sources are interpretations and evaluations of primary sources. They are not evidences, but rather commentary on and discussion of evidences. These types of

information are either compiled from or refer to primary sources of information. Generally, they are accounts written after the fact with the benefit of hindsight. These are the original sources having been modified, selected or reorganized (or repackaged) so as to serve a definite purpose or group of users. Secondary sources are easily and widely available as compared to primary sources. These also serve as bibliographical keys to primary sources. The user may consult the secondary sources first which will lead him/her to specific primary sources.

Examples:

a) Bibliographies;

b) Indexing and abstracting periodicals;

c) Reviews; Treatise;

d) Biographical works;

e) Commentaries, criticisms;

f) Dictionaries, encyclopaedias, handbooks, tables, formularies;

g) Magazine and articles published in newspapers (this distinction varies by discipline);

h) Monographs (books excluding fiction and autobiography);

i) Textbooks.

6.5.3 Tertiary Sources

Tertiary sources consist of information which is extracted from primary and secondary sources. These will aid the user of information in the use of primary and secondary sources of information. Most of the tertiary sources do not contain subject knowledge. The prime function of a tertiary source is to aid the searcher in the use of primary and secondary sources of information. Out of various kinds of sources, tertiary sources are the last to appear.

Examples:

a) Bibliography of Bibliographies; (list of bibliographies which direct readers to useful bibliographies through subject or name of an individual, place, institution, etc. e.g., bibliographic index, cumulative bibliography of bibliographies)

b) Chronologies;

c) Directories; (a list of names and addresses of persons, organisations, manufactures or periodicals, e.g., World of Learning, Ulrich's International Periodicals Directory)

d) Guidebooks (Guides to literature, guides to libraries and guides to organisations);

e) Lists of research in progress;

f) Indexes, abstracts, bibliographies used to locate primary and secondary sources;

g) Manuals;

h) Fact books;

I) Databases

We can find a large number of examples for each category mentioned above.

6.6 Comparison across Disciplines

As mentioned earlier, depending upon the discipline or context, the definition of primary and secondary sources may vary. This concept is exemplified in figure 2.

SUBJECT	PRIMARY	SECONDARY	TERTIARY
Art and Architecture	Painting by Picasso	Article critiquing art pieces	ArtStor Database
Chemistry/Life Sciences	Einstein's diary	Monograph on Einstein's life	Dictionary on Theory of Relativity
Engineering/ Physical Sciences	Patent	NTIS Database	Manual on using invention
Humanities	Letters by Martin Luther King	Website on Kings' writings	Encyclopedia on Civil Rights Movement
Social Sciences	Notes taken by clinical psychologist	Magazine article about the psychological condition	Textbook on clinical psychology
Performing Arts	Movie filmed in 1942	Biography of the director	Guide to the movie

Table: Comparison of information sources across disciplines

The table shows the gradual transformation of an information source, through the ages, from primary to secondary and tertiary.

6.7 Evaluation of Reference and Information Sources

We can't assume that all information we are getting from different information sources are authoritative, objective, reliable or timely. One should evaluate it critically before use. A researcher must evaluate all information sources used by him to determine its value with respect to his/her information needs. There are many evaluation criteria which can be applied to find out the value of an information source.

In the viewpoint of a library professional, evaluation criteria provide guidance and rationale for selection decisions. Before including an information source into the reference collection of a library, the value of the source must be evaluated based on the set criteria. General criteria applied to both print and electronic reference and information sources are given below. To evaluate each criterion, some specific questions shall be asked.

A. **Scope:** Scope denotes the purpose, coverage and currency of the information source.

i. **Purpose:** Determining the purpose of information will help in deciding the usefulness of the information. The questions to be answered are, is it:

a. Designed to sell a project or service?

b. Presenting research findings?

ii. **Coverage:** The depth of coverage is an indication of the value of information. The questions to be answered are,

a) Does the author refer to relevant information or data that was available at the time when the work was published?

b) Or, does the author use out-of-date information; or ignore information or data that was available at the time?

c) Did the author consider all aspects relevant to the topic?

d) Is the information complete, or is it a summary of other works?

iii. **Currency:** Age or timeliness of the information is an important factor which determines the quality. The questions to be answered are,

a) When was the information published?

b) Is that information up-to-date? Have new discoveries been made, or have events taken place since the information was published?

B. **Relevancy:** The information source should be relevant to the information needs of the searcher. The questions to be answered are,

a. Is the source related to the field of study?

b. Can the information source answer the questions related to the field of study?

c. Does the source fully or partially cover the search topic related to the field of study?

d. Does the information hold appropriate depth or level?

C. **Format:** The physical format of the information source. Whether the source is,

a. Print/microform/multimedia/digital?

b. How is it designed? Physical makeup, illustrations, images, etc.,

D. **Authority:** The knowledge and credibility of the author is very important in the evaluation process. The questions to be answered are:

a. Is the author a recognized authority in this field?

b. Is the publisher reputable in this discipline?

c. Are there other works by this author in this field?

d. Is he quoted by other authors?

E. **Treatment:** The manner in which the author treats the subject. The main factors to be evaluated under this are:

i. **Accuracy:** The questions to be asked are:

a) Is the information correct?

b) Does the author provide sources for statistical information?

c) Does the author cite his/her own sources?

d) Does it have a complete bibliography?

e) Is the data collected from a valid study using appropriate methodologies?

ii. **Objectivity:** The questions to be answered are:

a) Is the document written from an objective viewpoint?

b) Does the author show any bias?

c) Is there any omission from the coverage which reveals the bias?

d) Does the author try to sell something?

iii. **Audience:** Who is the targeted audience of the document? The questions to be answered are:

a) Is the document intended for students, teachers, scholars, professionals or common people?

b) What is the level of content? Detailed/specific or complex/simple ?

F. **Relation to similar works:** The uniqueness of the document is evaluated. The extent of relation or similarity with other sources in the subject area is also tested. The availability of new editions is also an indicator of a good reference source, particularly in the field of science and technology.

G. **Arrangement:** The arrangement of data or content in the document should be logical and follow a standard sequence. Proper indexing must be given.

H. **Ease of use:** The source must be user friendly. It should be used by the intended audience without any problem in finding the required information. In the case of digital documents, searching capabilities and response time must be evaluated.

I. **Cost:** The cost of source must be genuine and justifiable. It is very important when a library selects a reference document for its collection. Licensing conditions (particularly for digital documents) must be verified before accession. The conditions must not violate the existing policies of the parent organization.

The above discussion showed that the information sources must be evaluated before using in order to identify its quality.

6.8 Summary

Importance of information in the present information society is unquestionable. Everyone in this society needs some kind of information for his/her living. Understanding the nature and importance of information sources and its management are essential for any library or information professional. Information sources are basically categorized into documentary and non-documentary. The categorization of information sources as primary, secondary and tertiary, based on their characteristics, helps to identify the sources easily. Primary sources are more accurate and current than secondary. Tertiary sources guide a searcher to primary and secondary sources. Most of the reference sources come under secondary and tertiary sources. An information source must be evaluated for its scope, currency, relevancy, authority, treatment, relation to similar works, arrangement, ease of use and cost.

6.9 Glossary

Documentary sources: Documentary sources are basically derived from or pertaining to documents and are records relating to individuals or groups of individuals that have been generated in the course of their daily lives.

Non-documentary sources: Non documentary sources of information are information provided by live sources such as through discussion with colleagues, visitors, participants of seminars and conferences, professional associations, learned societies and mass media.

6.10 Exercise

Short Answer Questions

1. Define a reference and information source.
2. Why do users require information sources?
3. What are the types of reference and information sources? Give examples.
4. Differentiate primary, secondary and tertiary sources of information.
5. Compare the types of reference and information sources across disciplines.
6. What are the basic evaluation criteria for reference and information sources?
7. What you mean by 'relevancy' of an information source?
8. Write three examples each for primary, secondary and tertiary sources of information.

Long Answer Question

1. Discuss the flow of reference and information sources from the state of primary to secondary and tertiary with examples.
2. Discuss the criteria for the evaluation of an information source.

Chapter-7

Categories of Reference Sources: Description and Scope

After studying this section, students will be able:

- *To understand the purpose of reference collection;*
- *To gain knowledge about the development of a reference collection;*
- *To understand about the categories of reference sources;*
- *To understand the scope and features of different reference sources;*
- *To know about Online Reference Sources.*

Contents

7.0 Introduction

The quality of the reference collection of a library determines the quality of reference service it provides. Selection and acquisition of reference materials depend upon the needs of the users and the overall objectives of the reference section or the library. A reference collection development policy has many elements. The ongoing process of maintaining the collection with proper updation or strengthening of the weaker areas, keeps the collection live and dynamic. Purpose and development of the reference collection are explained here followed by a brief description of important reference sources, which are normally acquired by the library to build the collection.

7.1 Purpose of the Reference Collection

Michael Buckland writes that a reference collection fulfills two needs:

i. Looking up or verifying factual data, often referred to as "ready reference"; and

ii. Establishing an initial outline and context for any topic efficiently and effectively, especially determining the what, where, when and who aspects of whatever is of interest.

The purpose of the collection varies depending on the type and mission of the library, the needs of the clientele served, in addition to the philosophy and goals of the reference staff, library administration and the parent organization.

7.2 Development of a Reference Collection

The escalating cost of reference materials, growth in types of formats, emergence of new access technologies, and rigid licensing policies make the task of developing a collection of reference materials difficult. Reference resources are available in a variety of formats and now-a-days many of them are available in multi-formats (same content in print, online, e-book, audio and video forms). Primary components of a core reference collection include resources in print, microform, electronic and the resources over a network (internet).

7.2.1 Reference Collection Development Principles

The basic principles of reference collection development, as mentioned by Meghan Harper are:

i. Reflect the library's mission

ii. Knowing the user

iii. Develop a budget plan

iv. Maintain a balance of electronic and print sources
v. Develop policies
vi. Develop staff expertise
vii. Solicit inputs from the user
viii. Preview/review reference materials
ix. Evaluating the collection on a continuing and systematic basis

7.2.2 Reference Collection Development Policy

A collection development policy helps in streamlining the process and meeting the specific objectives. Carol A. Singer states that, "a reference collection development policy serves as the basis for decision making by those who build and maintain the reference collection because it defines the purpose of the collection, and describes the content of the reference collection, both what should be included and what should not".

Singer outlines the components of a reference collection development policy which include:

- Purpose of the collection development policy
- Responsibility for collection development
- Purpose of the reference collection
- Target audience(s)
- Budgeting and funding
- Selection criteria
- Selection aids
- Preferred format
- Duplicates
- Preferred language(s)
- Circulation
- Treatment of specific resource groups
- Resource sharing
- Collection maintenance
- Weeding and reviewing the collection
- Policy revision

7.2.3 Collection Analysis

This is the process of gathering an overall picture of the age, number of items by topic, and often types of materials within a collection through the use of individual item records. Collection analysis helps the library to make good selection decisions and prioritizing collection development and evaluation.

7.2.4 Collection Planning

This is the identification, comparison and selection of quality reference resources with the help of analyzing user feedback and selection tools (publisher catalogues, professional journal reviews, etc.). The process includes gathering information to assist in the selection of new materials and the identification of weakness in the existing collection.

7.3 Evaluation of Reference Sources

The quality of an individual source must be evaluated before including it into the reference collection of the library. There are many criteria that should be considered while evaluating reference sources. The general criteria devised by Bopp and Smith are:

i. Format: print/microform/ electronic, physical makeup, illustrations

ii. Scope: purpose, coverage, currency

iii. Authority: authorship, publisher/sponsor, source of information

iv. Treatment: accuracy, objectivity, style/ audience.

v. Relation to similar works: uniqueness, new editions

vi. Arrangement: sequence, indexing

vii. Special features

viii. Cost: price, licensing conditions

7.4 Classification of Reference Sources

William A. Kats categorizes reference sources into two types.

i. **Control Access Directional Type:** This reference source type does not contain the required information in itself but directs the user to the documents which contain the information. Example: bibliographies, catalogue, indexes, abstracts, etc.

ii. **Work of Sources Type:** The source itself contains the information. Example: Encyclopaedia, Dictionaries, Yearbooks, etc.

7.5 Types of Reference Sources

Reference sources are designed to be consulted or referred for a specific piece of information. The scope and main characteristics of important reference sources have been discussed in the following sections.

7.5.1 Almanacs, Yearbooks, Handbooks and Manuals

Almanacs, yearbooks and handbooks are also known as ready reference sources which provide concise factual information about current and historical events; organisations, people, places and things; and statistical trends. These sources help the user to locate concise facts quickly.

Scope

The following kinds of information are normally found in almanacs, yearbooks handbooks and manuals.

i. Chronological list of the important events of the year;

ii. Summaries of the political, social and cultural events of the year;

iii. Major developments and trends in various fields (science and technology, economics, sports, etc.) during the year;

iv. Short biographies and obituaries;

v. Information about organisations and associations;

vi. Statistical information (population, prizes, awards, sports events, etc).

a) Almanacs: According to the ALA Glossary, an almanac is "a) an annual publication containing a calendar, frequently accompanied by astronomical data and other information or b) An annual year book of statistics and other information, sometimes in a particular field. It records most of the astronomical data and various statistics, such as the times of the rising and setting of the sun and moon, eclipses, hours of full tide, religious festivals, terms of courts, etc".

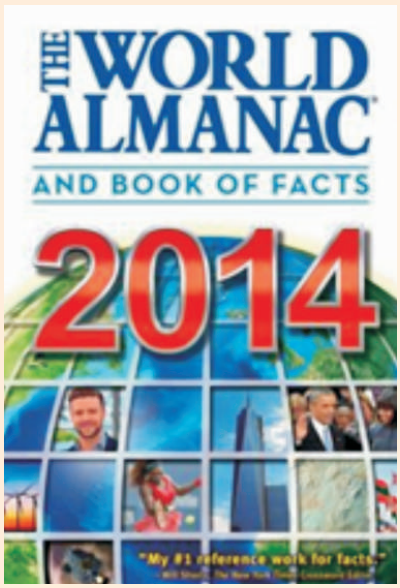
William A. Kats defines an almanac as "a compendium of useful data and statistics relating to countries, personalities, events, subjects, and the like".

The earliest known almanac in this modern sense is the Almanac of Azarqueil written in 1088 by AbūIshāqIbrāhīm al-Zarqālī (Latinized as Arzachel) in Toledo, al-Andalus. The first American Almanac was published in 1639, and the most famous one was Benjamin Franklin's 'Poor Richard's Almanack'.

Almanacs are of two kinds, general and student. The general almanac is commonly used for ready reference to supply brief, current information to basic

reference queries. The font is typically small, and the index at the back of the volume is invaluable to find the information and data quickly.

Examples: The Old Farmer's Almanac (1792, New York), World Almanac and Book of Facts (1868, New York), Whitaker's Almanack (1869, London), Time Almanac with Information (1947-2013, New York)



The first edition of THE WORLD ALMANAC was published by *The NewYork World* newspaper in 1868 (the name of the publication comes from the newspaper itself, which was known as "The World"). Publication was suspended in 1876, but in 1886 famed newspaper publisher Joseph Pulitzer, revived THE WORLD ALMANAC with the intention of making it "a compendium of universal knowledge." THE WORLD ALMANAC has been published annually ever since.

In 1894, THE WORLD ALMANAC changed its name to THE WORLD ALMANAC AND ENCYCLOPAEDIA. This was the title it kept until 1923, when it became THE WORLD ALMANAC AND BOOK OF FACTS, the name it bears today.

Ref: http://www.worldalmanac.com

Figure 7.1: The World Almanac and book of facts

Students or Kids Almanac is typically an illustrated and more concise version of a general almanac.

Examples: The World Almanac for Kids (1996-, New York), National Geographic Kids Almanac, Time for Kids Almanac, Scholastic Almanac for Kids.

b) **Yearbooks:** A yearbook/annual is an annual compendium of the data and statistics of a given year. The basic purpose of a yearbook is to record the years' activities by country, subject or specialized area. The essential difference between a yearbook and an almanac is that the almanac will also include considerable retrospective material, material which may not be in the average yearbook. Yearbooks regularly index personal names, while almanacs in book format, index personal names sparingly. Yearbooks contain longer descriptions

of events and more analysis and evaluation, and articles are almost always signed.

Yearbooks are of two types (i) general yearbooks, which covers the activities of the past year and (ii) newspaper indexes, which are most up to date with well-organized formats and the brief annotated stories (e.g. New York Times Index, National Newspaper Index)..

Examples: Europa World Yearbook (1959, London), Statesman's Yearbook, (1864, New York), India: A Reference Annual (1953, New Delhi), Manorama Yearbook (1959, Kottayam), World of Learning (1947, New York), Demographic Yearbook (1948 , New York), McGraw Hill Yearbook of Science and Technology (1962, New York).

c) **Handbooks and Manuals:** The Handbooks and Manuals (the terms often used synonymously) serve as handy guides to a particular subject. Handbooks often include examples, illustrations, or both. A handbook reviews a particular topic in a factual and comprehensive way. The emphasis is on established knowledge rather than on recent advances, although in the field of science, handbooks that are more than a few years old may be almost useless within a few years. A scientific handbook is a specialized manual, deals with a specific subject area and only experts understand the contents (tables, formulas, equations, graphs, symbols, jargon). Generally, the handbook has a limited scope which contains information on a particular field.

Examples: Guinness World Records (1956, New York), CRC Handbooks of Chemistry and Physics (1913, New York), Hoover's Handbook of World Business (1918, Austin), Robert's Rules of Order (1876, New York, The Merck Manual of Medical Information (1899-New Jersey), The Chicago Manual of Style (1906, Chicago), MLA Handbook for Writers of Research Papers (1985, New York), Publication Manual of American Psychological Association (1929, New York), The Columbia Guide to Online Style (1998, Columbia).

7.5.2 Bibliographies

The term 'bibliography' was first used by Louis Jacob de Saint Charles in his *Bibliographia Parisiana* (1945-'50), and derived from two Greek words, "biblion", means "book" and "graphein", means "to write". A bibliography is a list of materials (information sources) used to identify sources of information on particular topics. Bibliographies may be current or be composed of past editions of published materials (retrospective).

According to D. W. Krummel, "the term bibliography can have two definitions: there is bibliography itself, an activity, and there is a bibliography, the product of this activity".

Scope

The scope of the bibliography is related to the domain of items to be selected for inclusion.

Features and categories

Regardless of form, a bibliography is used primarily for three basic purposes: (i) to identify and verify, (ii) to locate, and (iii) to select.

Bibliographies can be broadly divided into three parts,

(i) **Systematic or enumerative bibliography:** It is the systematic listing of individual items with minimum details for reference and study;

(ii) **Analytical or critical bibliography:** It deals with a physical description of the book like authorship, edition, date, place of printing and perfection of the copy, and

(iii) **Historical bibliography:** The study of books "as objects of art", concerned with the art of writing, printing, illustration and binding.

The objective of systematic bibliography is to collect and list information about an individual book and its related materials in a logical or useful order. Such a bibliography is usually enumerative. Bibliographies are not necessarily limited to books. They provide list of other forms of information sources like images, audio, video, software, database records, websites, etc.

Some category of bibliographies are as follows:

a) **Universal bibliography:** Universal bibliography, theoretically consists of everything published, issued, or created in the field of communications from the beginning through the present to the future. It is not limited by time, country, language, subject, or form and may be achieved by combining all online national bibliographies, which are the exhaustive listing of information sources produced in one country.

Example: Bibliotheca universalis

b) **National bibliography:** This type of bibliography is limited to materials published within a country. The scope may be enlarged to include works written about the country or in the language of the country. A national

bibliography is often a product of the government and sets itself limits of time, form and origin.

Examples: Indian national bibliography, British national bibliography

c) **Trade bibliography:** This is produced by commercial publishers and provides the information necessary to select and acquire recently published materials.

Examples: Books in Print (BIP), Cumulative Book Index, Indian Books in Print, American Book Publishing Record

d) **Subject bibliography:** It is a list of materials that relates to a particular topic, intended for researchers and specialists.

Example: Guide to reference books, Information sources in science and technology, Bibliography of Indology

e) **List of periodicals and newspapers:** It includes lists of current and retrospective periodicals and newspapers. Example: Ulrich's International Periodicals Directory, American Newspapers, Gale Directory of Publications and Broadcast Media

f) **Author bibliography:** It is the list of materials limited to a particular author. Example: Chaucer: A bibliographical manual

g) **Bibliography of bibliographies:** A listing of bibliographies. Example: Bibliographic Index: A Cumulative Bibliography of Bibliographies

h) **Library Catalogues:** It serves the users of particular library by listing the holdings and location of materials in that library, often through the Online Public Access Catalogue (OPAC).

i) **Union Catalogues:** It identifies the material held in the collection of more than one library, through a shared cataloguing network. Example: OCLC, RLIN.

7.5.3 Biographical Sources

Biographical sources contain data on people. They focus either on currently living persons or are retrospective, focusing on past historical figures.

Scope

Biographical sources provide information about dates of birth and death, qualifications, the positions held, the contributions made and the address of the biography. Some of these sources also provide portraits or images with an index. These are ready reference sources which provide basic facts about an individual. The scope of a biographical source shall be broad or narrow depending on the comprehensiveness of the coverage.

Features and categories

The quality of a biographical source is determined by the accuracy and currency of the entries. There shall be a list of sources from which the information was obtained. The organisation of the entries shall be with adequate access points, i.e., indexes and cross references.

Biographical sources can be divided into two,

i. **Direct sources:** They provide factual information themselves rather than referring the user to some other works (e.g., Who is who)

ii. **Indirect sources:** They list bibliographic citations, referring the user to other works that may contain the information sought (e.g., biography index)

Another categorization of biographical sources can be made based on time as,

i. **Current:** Biographical source about living persons

ii. **Retrospective:** Biographical source about persons from the past.

We may obtain biographical information from varied sources like, biographical dictionaries, almanacs, dictionaries, directories, encyclopaedias, literary handbooks, manuals, obituaries in newspapers, periodical and newspaper indexes, etc.

Important biographical sources with examples:

a) **Current Biographical Dictionaries:** e.g. Current biography (1940, New York), Contemporary newsmakers (1985, New York), India Who's who (1969, New Delhi)

b) **Retrospective Biographical Dictionaries:** Webster's biographical dictionary (1972, Massachusetts), Dictionary of national biography (1972, Kolkatta), National biographical dictionary of India(1972, Delhi), The International who's who (2000, London), Dictionary of American biography (1996-, New York)

c) **Biographical Directories:** Who's who (1849, London), Who's who in America (1899, Chicago), American men and women of science (1906, New Providence, NJ)

d) **Professional and Subject Biographical Sources:** Directory of American Scholars (1974, New York), Directory of Libraries and Who's Who in Library Profession in Delhi (1964, Delhi), Who's who in Indian writers(1961, New Delhi)

7.5.4 Directories

Directories are used to locate organisations, institutions and people and to verify the details. The ALA Glossary of Library and Information Science defines a directory as "a list of persons or organisations, systematically arranged, usually in alphabetic or

classed order, giving address, affiliations, etc., for individuals, and address, officers, functions, and similar data for organisations."

Scope

Directories present information in an orderly, clear manner with a limited type of information. The coverage is extended to organisations of different kinds, learned bodies, scientific societies, professional bodies, trade associations, etc. with a variety of factual information. Directories form a rich source of biographical information.

William A. Kats divides directories as:

i. **Local directories** provide list of individuals and organisations of a particular locality (e.g., Telephone and city directories)

ii. **Governmental directories** provide list of government institutions (e.g., Worldwide Government Directory (2000, Washington D. C.)

iii. **Institutional directories** provide lists of schools, colleges, universities, foundations, libraries, hospitals, museums and similar organisations. (e.g., World of Learning (1947, London), the American Library Directory (1923, New York), Indian Library Directory (1938, Delhi), Commonwealth universities Yearbook: A directory to the universities of the Commonwealth and the handbook of their Association (1914, London)

iv. **Investment services** provide reports on public and private corporations and companies.

v. **Professional directories** are lists of professional organisations (e.g., Europa World Yearbook (1959-, London), Yearbook of the United Nations (947/47-, New York), Encyclopaedia of Associations: National Organisations of the U.S. (1964, Farmington Hills)

vi. **Trade and Business directories** provide information about companies, industries and services.(e.g., World Chamber of Commerce directory (2000, Loveland), Million Dollar Directory (1998, New Jersey).

Directory of Directories provide listings and descriptions of various directories

7.5.5 Dictionaries

Dictionaries are used to define words; to verify spelling, syllabication, or pronunciation; to check usage; or to determine the etymological history of a word. Around 1225 A. D, English Grammarian John of garland used the word '*dictionarius*' as the title of a collection of latin words arranged by subject for the use of learners.

Scope

A basic dictionary contains an alphabetical list of words with their meanings or definitions. This may be of a language or the terms of a subject or vocation, arranged according to some definite order, usually alphabetical. Entries may also include inflected forms, run-on or derivative entries, etymologies or word histories, synonyms and antonyms, usage or status labels, usage notes, illustrative quotations and pictorial illustrations.

Types and features

Based on the approach of presentation, dictionaries can be of two types, (i) *descriptive*, recording how the language is actually used and (ii) *prescriptive,* advocating how it ought to be used.

The major categorisation of dictionaries based on the content is as follows.

i. **General (Unabridged) Dictionaries** are derived or condensed from a larger work, attempt to include all words in a language that are in use at the time the dictionary is compiled.

   Examples: The Random House Webster's Unabridged Dictionary of the English Language (1997, New York)., Webster's Third New International Dictionary (1961, Springfield). Hindi Shabdasagar (1967, Varanasi).

ii. **Etymological Dictionaries** deal with origin and history of words and meanings in use. Example: Oxford English Dictionary (1928, Oxford), Oxford English Dictionary in CD ROM appeared in 1992.

iii. **Desk Dictionaries** are abridged, or desk-sized dictionary, a selective compilation, often based on a larger dictionary and prepared for a certain level of students. Example: Marriam Webster's Collegiate Dictionary (2010, Mass.), The American heritage Dictionary of the English Language (2000, Boston), Comprehensive English-Hindi Dictionary (1962, Varanasi),Practical Sanskrit-English Dictionary (1957, Poona), Bharatiya by a baharkosha or Dictionary of sixteen Indian languages (1961, Bombay)

iv. **Subject dictionaries,** are confined to specialized subject fields, professions or occupations. Example: McGraw Hill Dictionary of scientific and technical terms, 3rd ed. (1984, New York), ALA Glossary of Library and Information Science (1983, Chicago).

v. **Dictionaries of quotations** are used to identify or verify a given quotation or to select a quotation on a given topic or by a given author or for a special occasion.

Examples: Barlett's Familiar Quotations (1855, Cambridge), The Oxford Dictionary of Quotations 5th ed., (1999, Oxford).

vi. **Thesauri (Dictionary of Synonyms and Antonyms)** are specialized dictionaries deal with synonyms and antonyms. Example: Roget's International Thesaurus, 5th ed., (1992, New York), Webster's new Dictionary of Synonyms (1968, Springfield).

vii. **Dictionaries of usage** contain definitions supplemented by discussions on how words should be used. Example: The New Fowler's Modern English Usage , 3rd ed., (2000, Oxford).

viii. **Abbreviations and Acronyms Dictionaries** commonly used in every subject area. Example: Acronyms, Initialisms and Abbreviations Dictionary (1960, Farmington Hills).

7.5.6 Encyclopaedia

An encyclopaedia is a compendium of knowledge. An encyclopaedia is regarded as one of the most reliable and used reference sources in a library. Creating a modern encyclopaedia is a task involving a large team of persons including editors, consultants, contributors, etc. The Oxford English Dictionary has defined an encyclopaedia as "a literary work containing extensive information on all branches of knowledge usually arranged in alphabetical order". ALA Glossary of Library Terms defines encyclopaedia as "a work containing information articles on subject in every field of knowledge usually arranged in alphabetical order or a similar work limited to a special field of subject".

Scope

The types of questions answered through the use of an encyclopaedia are (i) ready reference information (e.g., Who invented radio?) (ii) general background information (e.g., How does photosynthesis work?) and (iii) 'pre-research' information, which helps to launch a research. Encyclopaedias provide a well-organized overview of selected topics of major importance written in an objective style.

Types and features

Basically, encyclopaedias can be divided into following categories.

i. **Encyclopaedias for Adults,** contain informational articles/entries giving essential general information on subjects in various branches of knowledge, arranged alphabetically by subject and names. e.g., New Encyclopaedia

Britannica, 32 vols. (2010, Chicago) Encyclopaedia Americana, 30 vols. (1984, New York), Colliers' Encyclopaedia, 24 vols (1976, New York)

ii. **Encyclopaedias for Children and Young Adults** are written for young readers and tend to place more emphasis on formats, illustrations and pedagogical tools. e.g., World Book Encyclopaedia, 22 vols. (2010, Chicago), The Oxford American Children's Encyclopedia, 9 vols. (1999, New York).

iii. **Subject Encyclopaedias** have a broaderscope and give in-depth coverage to a specific field of knowledge. E.g., McGraw Hill Encyclopaedia of Science and Technology, 20 vols, (1992, New York), Encyclopaedia Indica (1975, New Delhi)

7.5.7 Geographical Sources

The primary purpose of geographical sources is to help one to locate places, tell something about a location, or show how to get there. These sources basically consist graphic representations and concerned with information about places such as cities, towns, mountains, lakes, rivers, forests, etc.,

Geographical sources can be divided into following categories.

i. **Gazetteer:** Gazetteer is a geographical dictionary of places arranged alphabetically. In one sense, the index in any atlas is a gazetteer, for finding lists of cities, mountains, rivers, population, etc. A gazetteer provides officially standardised form of spelling of place-names along with cross reference to variant spellings. Most of the gazetteers provide latitude and longitude.

There are two types of gazetteers, (i) *locational gazetteer,* which provides information precisely locating either by atlas page and grid index or by even more precise latitude and longitude. (ii) *descriptive gazetteer,* which provide some or all of the above information and then describe the place.

e.g., The Columbia-Lippincott Gazetteer of the World (1952, New York), Gazetteer of India: Indian Union (1965-1978, New Delhi).

ii. **Maps, Atlases and Globes:** A map is a representation of the outer boundaries of a part or the whole of the earth or moon or planets on a plane surface. A map may be of a city or village or of a smaller area irrespective of the scale or extent of area. e.g., Maps of America: cartographic products of the US Geological Survey and others, 3rd ed, (1988, Washington).

An atlas is a volume consisting of a collection of maps. They can be divided into three groups, (i) Current atlases are needed for up-to-date information on geographical and political changes in the world, e.g., The Times Atlas of the

World. 10th ed., (1999, New York). (ii) Historical atlases depicts changes in boundaries, military campaigns, early exploration and similar topics, e.g., The Times Atlas of World History.4th ed 1999, London) and (iii) Thematic or subject atlases, emphasize a specific subject or region. e.g., National Atlas of Canada. 5th ed (1997, Ottawa). A globe is a spherical representation of the earth. It is considered as the only relatively accurate representation of the earth.

iii. **Travel Guides:** A travel guide is defined as "a handbook for travellers, that gives information about city, region/country or a similar handbook about a building, museum, etc. It contains enough local information about countries, places, routes, accommodation, exchange rates, etc."

e.g., Fodor's India (1978, London), Tourist Guide-India

7.5.8 Indexes and Abstracts

Indexes such as periodical indexes usually list the authors, titles or subjects of publication without comment, whereas abstracts present a brief summary of content.

The factors which decide the scope of indexes and abstracts are time period, types of materials covered, depth and specificity of the indexing. General periodical indexes tend to index all substantive articles from the periodical selected for indexing, whereas subject specific indexes and abstracts are more likely to index selective material from a much larger list of periodicals.

Types

Indexes can be categorized as:

i. Book Index

ii. Indexes of collections of poems, fiction, plays, songs, essays, stories, biographies, etc. e.g., Essay and general literature index (1900-33, new York)

iii. Periodical Indexes, which are of three types:

a) General indexes cover many periodicals in a wide field of knowledge. E.g., Applied Science and Technology Index (193, New York), Guide to Indian Periodical Literature: Social Sciences and Humanities, Vol.1 (1964, Gurgaon)

b) Subject Indexes cover several periodicals but the scope is restricted to a specific subject area. E.g., International Bibliography of Sociology (951, London)

c) Indexes to individual periodicals

iv. Newspaper Indexes are of two types:

a) Indexing many newspapers. e.g., Indian News index.

b) Indexing a single newspaper. e. g., Index to Times of India.

Abstracts are of two major kinds,

i. Indicative abstracts tell about the document briefly. They summarise the content in brief.

ii. Informative abstracts are longer and present the essential data and conclusions so that the reader has fair idea of original document.

Another classification of abstracts is given below.

i. Discipline-oriented: They are concerned with a particular branch of knowledge, e.g., chemical abstracts

ii. Slanted abstracts: The emphasise on the subject-oriented part or portion of the concerned document

iii. Mission-oriented abstract: They are prepared for an abstracting service concerned with the application of a specific branch of knowledge.(e.g., Engineering abstracts)

Abstracts appear in different formats and the best known one is the periodicals. An abstracting periodical "is a regularly issued compilation of concise summaries of (i) significant articles (often in a very limited subject field) that appear in current primary source journals, and (ii) important new research monographs, reports, patents, and other primary source publications in the field."

Examples

a) General abstracting services: e.g., Bulletin signaltique (1940, Paris)

b) Library & Information Science: e.g., Indian library Science Abstracts (1967, Kolkatta)

c) Science and Technology: e.g., Biological abstracts (1926, Philadelphia)

d) Social science: e.g., Economic abstracts (1953, Hague)

e) Humanities. E.g., language teaching and linguistics abstracts (1968, London)

7.6 Online Reference Sources

Due to the proliferation of digital information, now-a-days, thousands of reference sources are available online. Most of the well-reputed print reference sources are now available in digital form also and can be accessed through the internet or on other digital online networks.

Historically, an electronic resource is a piece of information stored in the form of electrical signals and is usually found in a computer. This includes information available on the internet. Libraries offer many types of electronic resources, including subject research guides, indexes, electronic books and texts, electronic journals, library catalogues, reference sources, statistical sources, sound recordings and image databases.

The immensity of technological advancements happening in the domain of information generation, processing and retrieval has opened up limitless options before today's information seeker. The role of a reference librarian becomes more challenging and to accomplish the task he/she should be equipped with new tools and technologies regularly. The availability of reference sources in multiple electronic/digital formats along with their print counterparts and accessing it online led to the concept of online referencing services.

The term 'online' may be defined as "a terminal attached to or connected with a computer" or "(of an activity or service) available on or performed using the Internet or other computer network".

There are a number of online reference services which are available on the web. While some are free, others need payment. *Chowdhury and Chowdhury,* categorised online reference services into three broad groups:

i. Reference and information services from publishers, database search services and specialised institutions;
ii. Reference services provided by libraries and/or experts through the internet; and
iii. Reference and information services where users need to conduct a search and find information on the web.

Based on this service model, online reference sources on the web and those which are available over a network can be divided as follows. Examples given are representative only and you may find many other.

i. General Online Reference Sources

a) Encyclopaedias

e.g.,Encyclopaedia Britannica Online http://www.britannica.com/

Wikipedia http://en.wikipedia.org,

Refdesk http://www.refdesk.com/

b) Dictionaries

e.g., Visual Dictionary http://visual.merriam-webster.com/
Dictionary.com http://dictionary.reference.com/

c) Thesauri

e.g., Thesaurus.com http://thesaurus.com/

d) Almanac

e.g., InfoPlease http://www.infoplease.com/

e) Atlases

e.g., The CIA World Fact Book https://www.cia.gov/library/publications/the-world-factbook/
National Geographic Maps http://maps.nationalgeographic.com/maps

f) Directories, Government

e.g., Govt. of India Web Directory http://goidirectory.gov.in

g) Web Portals

e.g., Internet Public Library http://ipl.org/
Internet Library for Librarians http://www.itcompany.com/inforetriever/

h) Question Answer Service

e.g., AllExperts http://www.allexperts.com/
Ask http://ask.com/

i) Patents and Standards

e.g., World Intellectual Property Organization http://www.wipo.int/reference/en/

ii. Current Awareness and SDI Resources

e.g., Dialog Alerts http://www.dialog.com/products/alerts/Current Contents Connect http://thomsonreuters.com/current-contents-connect/

iii. Bibliographic Databases

e.g., PubMed https://www.ncbi.nlm.nih.gov/pubmed/IndMedhttp://indmed.nic.in , Agricola http://agricola.nal.usda.gov/

iv. Full Text Databases

e.g., Scientific Electronic Library Online http://www.scielo.org

Economic History Encyclopaedia Index http://eh.net/

v. **Statistical Databases**

e.g., Database on Indian Economy http://dbie.rbi.org.in

Global Population Statistics http://www.geohive.com/

vi. **Indexing and Abstracting Databases**

e.g., PsycINFO (American Psychological Association)

http://www.apa.org/pubs/databases/psycinfo/index.aspx,

Anthropological Index Online http://aio.anthropology.org.uk/aio/

vii. **E-Journals**

e.g., Directory of Open Access Journals http://www.doaj.org/

viii. **E-Books**

e.g., World Public Library http://www.netlibrary.net/Public.htm

ix. **Image Databases**

e.g., American Memory http://memory.loc.gov/ammem/index.html

Virtual Reference

The Reference and User Service Association defines Virtual Reference as "a reference service initiated electronically where patrons employ computers or other technology to communicate with public services staff without being physically present. Communication channels used frequently in virtual reference include chat, videoconferencing, Voice-over IP, co-browsing, e-mail, and instant messaging. While online sources are often utilized in provision of virtual reference, use of electronic sources in seeking answers is not itself virtual reference. Virtual reference queries are sometimes followed-up with telephone, fax, in-person and regular mail interactions, even though these modes of communication are not considered virtual".

7.7 Summary

A quality reference collection developed by adhering standard policies and principles, and supported by a planned reference service, is considered the strength of any library. A detailed study of classification and types of reference sources was presented in the chapter with examples. Online reference sources and virtual referencing were also mentioned in the chapter.

7.8 Glossary

Collection Development Policy: The primary purpose of the policy is to lay down guidelines for selecting materials for the collection of the library. The American Library Association defines collection development policies (CDP) as 'documents which define the scope of a library's existing collections, plan for the continuing development of resources, identify collection strengths, and outline the relationship between selection philosophy and the institution's goals, general selection criteria, and intellectual freedom'.

OCLC: Online Computer Library Center, Inc. (OCLC) is "a nonprofit, membership, computer library service and research organization dedicated to the public purposes of furthering access to the world's information and reducing information costs." Founded in 1967 as the Ohio College Library Center, OCLC and its member libraries cooperatively produce and maintain WorldCat, the largest online public access catalogue (OPAC) in the world.

7.9 Exercise

Short Answer Questions

1. What is the purpose of developing a reference collection?
2. How is a reference collection developed in the library?
3. What are the main categories of reference sources?
4. How is a reference source evaluated?
5. Write short notes on (i) bibliographies (ii) dictionaries (iii) encyclopaedias (iv) biographical sources.
6. How are online reference services classified?
7. What are the different types of online reference sources?
8. Write a short note on 'virtual reference'.

Long Answer Questions

1. Discuss the types of reference sources essential in the collection of (i) a college library (ii) a school library (iii) a university library.
2. Discuss the importance of online reference sources in the context of developments in the field of technology.

Chapter-8

Computer Hardware used in Library: Concepts

After studying this section, students will be able:

- *To understand the need of ICT in libraries;*
- *To gain knowledge about the Desktop system and its components;*
- *To gain knowledge about the printers and their functionality;*
- *To gain knowledge about scanner and it various types;*
- *To understand various networking components;*
- *To gain knowledge about the wireless technology and its tools.*

Content

8.3.1.2.1 Inkjet printer

8.3.1.2.2 Laser printer

8.4 Scanners

8.4.1 Types

8.4.1.1 High end A3 Flatbed Scanners

8.4.1.2 Drum Scanners

8.4.1.3 Hand Scanners

8.4.1.4 mm Scanners

8.4.1.5 Digital Camera

8.5 Modem (Modulator and Demodulator)

8.5.1 Types

8.5.1.1 Internal Modem

8.5.1.2 External Modem

8.5.2 Usage of Modem

8.6 Wi-Fi

8.6.1 Wireless Technology

8.6.1.1 2G and 3G technology

8.6.1.2 Wireless LAN

8.6.1.3 WIMAX

8.6.1.4 Radio Router technology

8.7 Bar code technology

8.7.1 Bar code Reader

8.7.2 Bar code Writer

8.7.3 Basic Requirements of Bar code Application

8.8 RFID

8.8.1 Components of RFID

8.8.2 Advantages of RFID in Libraries

8.9 Switches

8.9.1 Types of switches

8.9.1.1 Managed switched

8.9.1.2 Unmanaged switches

8.9.1.3 Smart Switches

8.1 Introduction

With the advent of Information and Communication Technology, the scenario of library operations has changed in Indian librarianship. Now, electronic and digital documents have replaced a good count of traditional print documents. At the same time, the library housekeeping activities have also changed from traditional manually operated system to computerised/automated systems. Due to such a major change, the internal scene of library collection and operations has received a new look in the form of ICT enabled practices. In this chapter, we will discuss about various computer hardware components and peripherals for acquainting students with the ICT based environment of libraries.

8.2 Desktop Computer

A desktop computer is type of a personal computer which is commonly made in order to use it over a single location like a desk or table. A desktop system includes a computer monitor, keyboard, mouse and other internal components like power supply, motherboard, hard drive and optical drive, etc. It is also known as home computer and workstation.

8.2.1 Characteristics

Given below are the characteristics of a desktop computer:

a. It occupies considerable space due to its big size.

b. It is a combination of monitor, keyboard, mouse, power supply and some other internal devices etc. Therefore it is not a portable device.

c. It is heavy in weight.

d. It is easy to operate.

e. It is suitable for office use.

8.2.2 Computer Hardware for Desktop

Computer hardware is the tangible part of a computer. In the computer world, it refers to the physical components that make up a computer system. It includes keyboard, monitor, mouse etc. The modern computers are better in terms of processing speed and memory. Computer is made of different physical parts inside it and this is known as the hardware. Some important computer hardware components are:

8.2.2.1 Central Processing Unit(CPU)

Central Processing Unit is the main part of the computer. It represents the working power of a computer system and is also known as computer brain. All processing works of a computer system are performed by its CPU. CPU is also accountable for performing and controlling the works of the others parts of a computer system. It transfers the data onto the motherboard.

8.2.2.2 Motherboard

A motherboard is the mother of all hardware components of a computer system. All other parts of a computer system are attached to motherboard. Motherboard is a part of the computer hardware that is hidden inside its CPU.

8.2.2.3 Hard Disc

Hard Drive is the storehouse of a computer system. It is the place where all programs of a computer including its basic data are stored. When you save any file, it goes to the hard disc; also you are able to retrieve a specific file through its unique path, which is allotted to each document.

8.2.2.4 Random Access Memory (RAM)

The Random Access Memory is the volatile memory of a computer. It is used to store the information in the computer that needs to be accessed often and quickly. RAM consists of an integrated circuit (Chip) and is attached to the motherboard of the computer system. When RAM is sufficient, the computer system works faster and processes information and data quickly.

8.2.2.5 Visual Display Unit (VDU)

Visual Display Unit is popularly known as monitor. It is the most popular hardware

device for display and presents data in soft form as output. A Monitor is connected to a keyboard and together they form a video display terminal which is also a hardware. Now-a-days, basically two types of monitors are in use - Cathode Ray Tube (CRT) and Liquid Crystal Display (LCD).

Figure 8.1: Monitor

8.2.2.6 Keyboard

Keyboard is a commonly used input device. Keyboard is a part of a computer system which is used to key-in the letters and instructions to the computer system for initiating a task. Today, the most popular keyboard uses 101 keys and is known as QWERTY keyboard.

Figure 8.2: Keyboard

8.2.2.7 Mouse

A computer mouse plays a vital role in the computer system. It is a popular point-and-draw device. A mouse is made of two or more buttons and a wheel. When the mouse is moved, it moves the cursor on the screen of the monitor. The functions of a computer mouse are multifaceted, as it performs various functions like click, copy, paste, drag, drop, etc.

Figure 8.3: Mouse

8.2.3 Advantages of Desktop

1. It is more powerful in terms of hardware.
2. It has a large screen that makes it easier to read.
3. It has a large storage capacity.
4. It is cheaper than laptops.
5. It is easy to operate and upgrade.

8.2.4 Disadvantages of Desktop

1. It is not a portable device.
2. It occupies a lot of space.
3. It requires a separate monitor.

8.3 Printers

The printer is an output device which is used for producing text and graphics on paper. Printers are attached by a printer cable or a USB cable to a computer system which serves as a document source and instructor. On the other hand, modern printer can be directly attached to electronic media like a memory card, scanner, digital camera, etc.

8.3.1 Types of Printers

Printer can be categorised into two types on the basis of its work:

1. Impact Printer
2. Non- Impact Printer

8.3.1.1 Impact Printer

The impact printer works by massive head or needle against an ink ribbon to make a mark on the paper. In other words, this printer works when the ink ribbon comes in contact with the paper.

Example: Dot-matrix printer, Chain printer, Drum printer, etc.

8.3.1.1.1 Dot-Matrix Printer

The dot-matrix printer prints one character at a time. It follows two directional method of printing, thus, the print head runs from left to right and again right to left. Dot-matrix printer is an impact printer as it works by moving a pin head over the inked ribbon to give ink impressions on the paper through the impact of the head. It can produce various sets (copies) of printouts by using carbon paper. Dot-matrix printer is a noisy printer as, when the head and ink-ribbon strike together on the paper, noise is produced. Normally, the printing speed of dot-matrix printers is less. Mostly these types of printers are used by individuals and institutions for printing, where printing speed and quality of printouts are not important.

8.3.1.1.2 Drum Printer

The drum printer is a type of line printer, it prints the entire line at a time. The drum printers have a set of hammers in front of the drum in such a manner that an inked ribbon and paper can be accommodated between hammers and drum. The total number of hammers is equal to the bands on the drum. The drum of the drum printer is made of metal. This drum is expensive and cannot be changed. The drum printer has less flexibility in the size of characters and their description. Although, printing

speed of the drum printer is faster than a dot-matrix printer, but it is not suitable for commercial purposes or fast printing assignments.

8.3.1.2 Non-Impact Printer

The non-impact printer does not work by striking a head against the ribbon. In other words, it produces the print (text and picture) without coming in actual contact with the paper.

Example: Inkjet printer, Laser printer, etc.

8.3.1.2.1 Inkjet Printer

The inkjet printer is also a character printer. The inkjet printer's print head has upto 64 nozzles. It can be warmed in a moment by an integrated circuit resistor. When the resistor warms up, the ink flows and is ejected via nozzles making an impression on the paper in front of the print head.

An Inkjet printer produces better quality prints in comparison to impact printers. Its print resolution is also better.

Figure 8.4: Printer

8.3.1.2.2 Laser Printers

Laser printers are non-impact printers. They do not make any noise. A laser printer works through the patterns generated by a laser beam. The printing quality of these printers is very high and at the same time the printing speed is fast. But this printer is more expensive than other types of printers.

A laser printer is a page printer. It prints one page at a time. It works through the following parts:

1. A laser beam source
2. A multi-sided mirror
3. A photoconductive drum
4. Toner

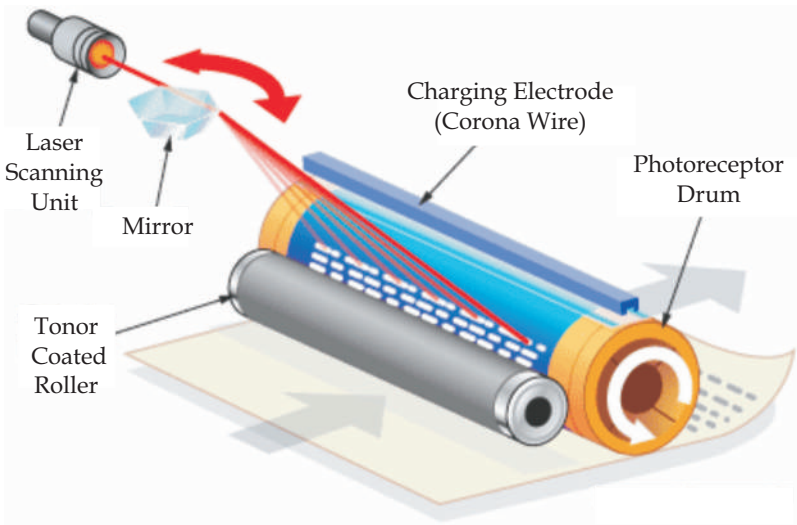


Figure 8.5: Laser Printer

8.4 Scanners

Scanners are computer support devices/peripherals, which one used to capture information from print sources and to convert that captured information in the computer readable digital form. With the help of scanners, one can save time in feed in / input data in the computer system.

8.4.1 Types of Scanners

Presently, there are various types of scanners. One can use any specific type of scanner according to one's specific requirement, based on the type of print source. Some of the common types of printers are as follows:

8.4.1.1 Flatbed Scanners

These are suitable for all types of photographs, transparencies, negatives and pages up to A3 size and anything that can be laid absolutely flat. They are not suitable for glass plates, mounted slides and documents larger than A3. As these scanners use very bright light, anything that is in danger of fading is not suitable for these scanners.

Figure 8.6: Flatbed Scanners

8.4.1.2 Drum Scanner

These are used by reprographic houses. While they produce very high-quality results, they are expensive and the originals need to be fastened around a drum, which means that the print document needs to be very flexible and unmounted.

Figure 8.7: Drum Scanner

8.4.1.3 Hand Scanners

A Hand Scanner is a manual device that is dragged on the face of the image to be scanned. It requires a steady hand to avoid uneven scanning rate else it would produce distorted images.

Figure 8.8: Hand Scanner

8.4.1.4 mm Scanners

These would seem to be ideal for collections made up of slides only. However, many of them are aimed at the domestic market and will not be robust enough for any reasonable sized collection. They often struggle to produce upto 18 Megabyte files of a good dpi.

Figure 8.9: mm scanners

8.4.1.5 Digital Cameras

Digital cameras come in a variety of standards. To be suitable for digitization work, these must be of a professional standard and should have more than 18 Megabytes with interchangeable lenses and accessories.

Figure 8.10: Digital camera

8.5 Modem (Modulator and Demodulator)

Modem is an important device of a data communication system. Modem is used for communication among various computers through telephone line. A modem converts digital signals received from a computer into analog signals for transmitting them over a telephone line and on other end, receives analog signals and converts them into digital signals for a computer system. Thus, modem is an important device of the communication process. A modem is used to carry out the modulation and demodulation process. The word 'modem' is made of two words - Modulator and Demodulator. The word 'Modulator' is derived from the word 'Modulate' which means 'convert'. So, a modulator is a device which is used to convert the digital information into analog information for a telephone line. While the other word 'demodulator' changes the analog signals to digital signals for a computer system. Thus, a modem allows two computers to communicate over a telephone line.

8.5.1 Types of Modem

On the basis of structure and design, there are mainly two types of modem:

1. Internal Modem
2. External Modem

8.5.1.1 Internal Modem

The internal modem is in the form of a detachable card and is placed inside the system unit. It is an optional add-on circuit board that may be attached in one of the computer expansion slots. It is inbuilt with the computer system. It takes power from expansion slot of the computer.

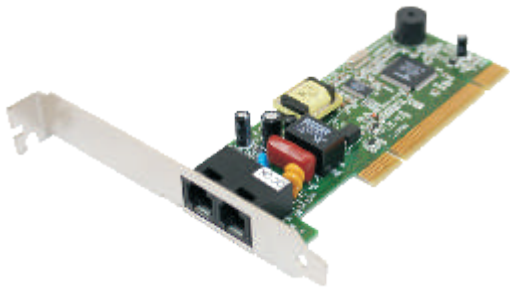


Figure 8.11: Internal Modem

Figure 8.12: External Modem

8.5.1.2 External Modem

The external modem is attached outside the system unit. It is connected to the mother board through a port. It has its own power supply and its front panel displays the connection status. An external modem is connected with a computer through a port. It is more expensive than internal modem.

8.5.2 Usage of Modem

In the early days, modems were used to communicate between data terminals and the host computer. Later, the use of modems was extended to communicate among end computers. Now-a-days, a modem is used for performing various activities including transferring data to remote systems where it is not possible to lay down network cable but telephone lines are easily available. Thus, it provides a cheap networking solution.

8.6 Wi-Fi

Wi-Fi allows connection to the network through a wireless router or access points. Wi-Fi stands for Wireless Fidelity. Here, the wireless network utilizes radio waves in the form of communication channel between computers. Wireless computing systems communicate by modulating radio waves or pulsing infrared light. Wireless communication is linked to the wired network infrastructure by stationary

transceiver. The area covered by an individual transceiver's signal is known as a cell. Cell sizes vary widely. For instance, an infrared transceiver can cover a small meeting room, a cellular phone transceiver has a range of a few miles and a satellite beam can cover an area more than 400 miles in diameter.

8.6.1 Wireless Technologies

8.6.1.1 2G and 3G Technology

The second generation of wireless networking technology is known as 2G technology; that is digital, circuit-based and narrowband but comfortable for voice and limited data communications. The third generation wireless networking technology is known as 3G technology that is suitable for voice and advanced data applications, including online multimedia and mobile e-commerce.

8.6.1.2 Wireless LANs

Wireless Local Area Networks (WLANs) are like traditional LANs having a wireless interface to enable wireless communication between the devices that are a part of the LAN. The component of a wireless LAN is the wireless interface card that has an antenna. Wireless LAN has limited coverage and is made to be used only in Local Area such as a room or a building.

8.6.1.3 WIMAX

WIMAX stands for Worldwide Interoperability for Microwave Access. WIMAX provides the wireless data communication over long distances in different ways, including point to point link and full mobile cellular type access. WIMAX operates in the frequency band between 3.3 to 3.4 GHz.

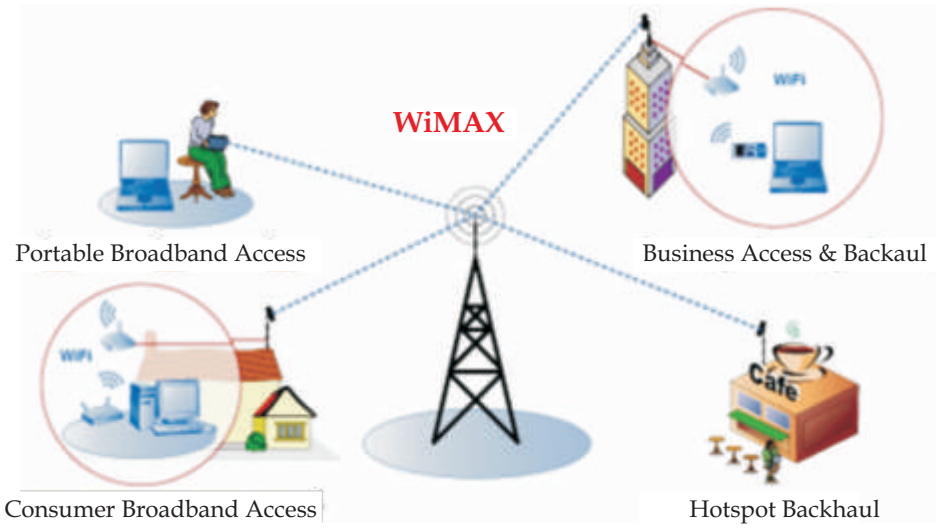


Figure 8.13: Wimax

8.6.1.4 Radio Router Technology

Radio router technology uses a radio transmission framework for packet based, broadband, IP wireless communications. It is an emerging wireless technology designed to make links in an IP network.

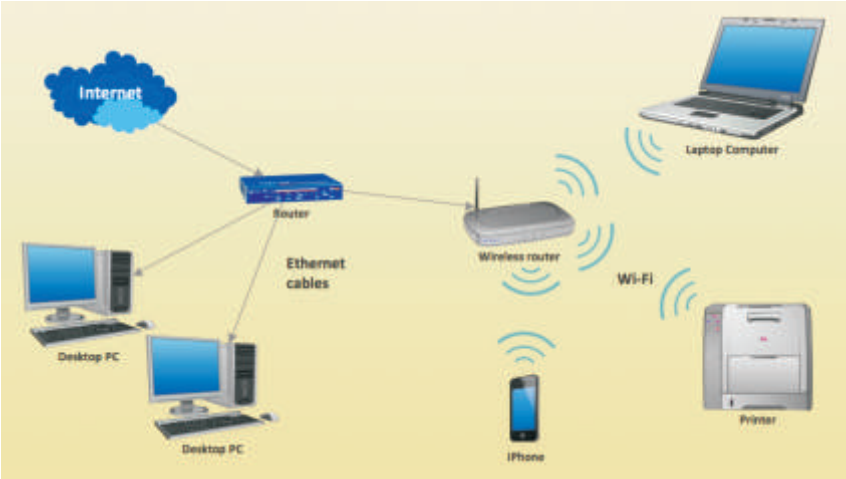


Figure 8.14: Radio Router Technology

8.7 Bar Code Technology

Barcode technology plays an important role in automating various activities of a library. The application of bar code technology increases the speed and accuracy in library operations. Barcode technology provides a simple and inexpensive method of encoding text information that is easily read by electronic devices. A bar code consists of a series of parallel, adjacent bars and spaces. Predefined bar and space patterns are used to encode small strings of character data into a printed symbol. A bar code reader/scanner decodes a bar code by scanning a light source across the bar code and measuring the intensity of light reflected back by the white spaces. The pattern of reflected light is detected with a photodiode which produces an electronic signal that exactly matches the printed bar code pattern. This signal is then decoded back to the original data by electronic circuits.

8.7.1 Bar Code Reader

The bar code reader is a device which is used for reading bar coded data. It may be a hand-held scanner or embedded in stationary scanner. It scans a bar code image and converts it into an alphanumeric value that is then fed to the computer. It uses laser beam scanning technology.

Figure 8.15: Bar Code Reader

8.7.2 Bar Code Writer

The bar code writer is a type of computer printer which prints bar codes on the slips or stickers. These bar codes are generated by bar-coding software against specific record of the stored database.

Figure 8.16: Bar Code Writer

8.7.3 Basic Requirements for Barcode Application

For implementing bar coding in library applications, following hardware and software are required:

a. Personal computers
b. Barcode Scanner
c. Decoder
d. Printer
e. Printing Software
f. Database of library holdings
g. Library Automation Software
h. Membership database

8.8 RFID - Radio Frequency Identification Technology

Application of Radio Frequency Identification Technology in libraries make library operations easy for visitors and librarians both. RFID is the latest technology which is used in library for implementing theft detection system. RFID based systems facilitate easy and fast charging and discharging system. RFID system is developed with the support of two technologies-radio frequency based technology and microchip technology.

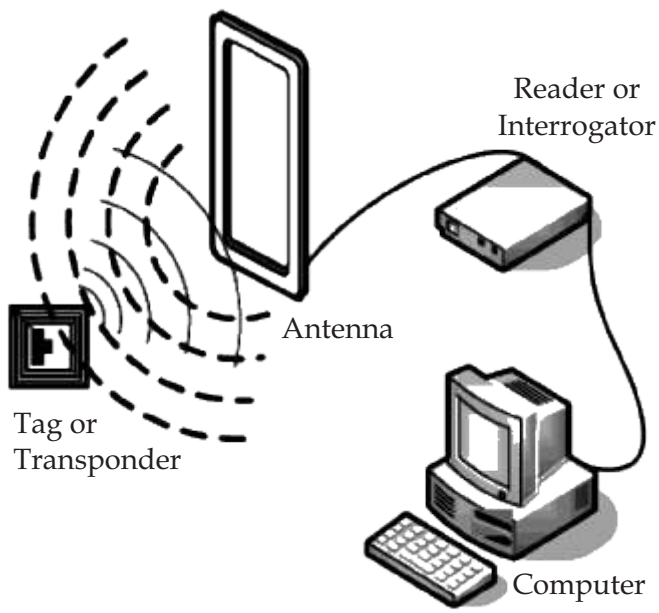


Figure 8.17: RFID system components

Microchips in the form of tags are used for storing information and are affixed on library materials, while this information is read with the help of radio frequency technology. The devices used for circulation and inventory purpose are usually called "readers" while the device used at the library gate are usually called "sensors".

8.8.1 Components of an RFID System

A comprehensive RFID system has four components

1. RFID tags that are electronically programmed with unique information
2. Readers or sensors to query the tag
3. Antenna
4. Server on which the software that interfaces with the integrated library software along with the appropriate database

8.8.2 Advantages of RFID in Libraries

1. It provides the self charging and discharging support.
2. It facilitates a high level of reliability.
3. The life of RFID Tag is quite long.
4. It has changed the circulation system by facilitating fast circulation activity.
5. It simplifies the process of stock verification.
6. It partly supports theft detection.
7. It facilitates a high level of security.
8. It can easily identify misplaced documents inside the stack.
9. RFID tags are very simple to install/inject inside the books.

8.9 Switches

A network switch is a computer networking device which is used to connect many computer devices to one another over a network. Switches in network are also known as switching hub, but a network switch is more advanced than a network hub, as a switch sends only those messages to the device which are demanded. A network switch is a multi-ported network bridge that processes and forwards data at the data link layer of the OSI model. Some switches have additional

Figure 8.18: Switches

features, including the ability to direct the packets. These switches are commonly known as multilayer switches. Switches exist for various types of networks including Fiberoptic, Asynchronous Transfer Mode, Ethernet, etc.

8.9.1 Types of Switches

There are four main types of network switches which are available for connecting devices. These are as follows:

1. Managed Switches
2. Unmanaged Switches
3. Smart Switches
4. Enterprise-managed Switches

8.9.1.1 Managed Switches

A managed switch is a device whose software gives permission to the user for modifying and updating the settings of the switch. This type of the device needs a knowledgeable user to change the setting of the switch according to his/her needs.

8.9.1.2 Unmanaged Switches

An unmanaged switch is another type of network switch. It is the cheapest option to connect devices. Unmanaged switch performs the main functions of managing the data flow between a connected device and multiple computers. This type of switch is basically used in small offices and business organisations.

8.9.1.3 Smart Switches

Smart switches carry both types of network switch (Managed and Unmanaged) character. It provides interface of web based and popular default settings to the user.

8.9.1.4 Enterprise managed Switches

An enterprise-managed network switch provides a wide range of adjustable settings to allow customised use within the campus. These are usually managed by network specialists and are constantly monitored, due to the size and complexity of the network.

8.10 Router

A router is a device that sends the data along networks. Routers are located at gateways, places where two or more networks connect, and are the critical devices for keeping the data flowing between networks and keeping the networks connected to

the Internet. This networking device filters the data and manages the data flow between computer networks. A router is connected to two or more data lines from different networks. Data breaks into two parts, into header and trailer, and it flows in packet among networks. When packets come in one of the lines, the router reads the address information in the packet to determine its ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey. Routers work like "traffic police" on the Internet.

Figure 8.19: Router

The most popular type of routers are home and small office routers that simply pass data, such as web pages, email, IM, and videos between the home computers and the Internet. An example of a router would be the owner's cable or DSL modem, which connects to the Internet through an ISP. More sophisticated routers, such as enterprise routers, connect large business or ISP networks upto the powerful core routers that forward data at high speed along the optical fiber lines of the Internet backbone.

8.10.1 Types

There are four types of routers, which are as follows:

8.10.1.1 Brouter

Brouter is the short form of Bridge Router. It is a networking device that serves as a bridge and a router in parallel manner.

8.10.1.2 Core Router

A core router is a router in a computer network that routes data within a network, but not between networks.

8.10.1.3 Edge Router

An edge Router is a router in a computer network that routes data between one or more networks.

8.10.1.4 Virtual Router

A Virtual router is a backup router used in a Virtual Router Redundancy Protocol (VRRP) setup. VRRP is defined as a protocol used with routers that helps in

preventing network downtime. In the event of a router failing, the backup or virtual router becomes the master router.

8.11 Summary

In this chapter we have discussed all possible ICT components which are essential for computerised and automated library and information centre. We have discussed about their utility and functions for improving the functionality of modern libraries.

8.12 Glossary

Bar code: Bar code consists of a series of parallel, adjacent bars and spaces. Predefined bar and space patterns are used to encode small strings of character data into a printed symbol.

IP: Internet Protocol

RFID: It stands for Radio Frequency Identification technology. It is the latest technology which is used in library for implementing theft detection system.

Router: Router is a device that sends the data along networks. Routers are located at gateways, the places where two or more networks connect, and are the critical devices that keep data flowing between networks and keep the networks connected to the Internet.

Switch: A network switch is a computer networking device which is used to connect many computer devices to one another over a network.

WIMAX: WIMAX stands for Worldwide Interoperability for Microwave Access. WIMAX provides the wireless data communication over long distances in different ways, including point to point link and full mobile cellular type access.

8.13 Exercise

Short answer type questions

1. What is the role of the CPU in a computer system?
2. Discuss the advantages and disadvantages of a desktop system.
3. What is the difference between an Impact printer and a Non-impact printer?
4. Which type of printer produces fast and quality output? Explain why?
5. What is the use of a printer in a library?
6. What do you mean by a scanner?

7. Discuss various types of scanners.
8. What is the difference between a flatbed scanner and a digital camera in terms of utility?
9. What do you mean by a Modem?
10. How does a Modem work?
11. Discuss the role of a Modem in information transfer over a network.
12. What do you understand by Wi-Fi?
13. Discuss various wireless technologies.
14. What is the difference between cabled and Wi-Fi connection of a network?
15. What do you mean by a Bar code?
16. How does Bar code technology support library automation process?
17. Discuss various requirements of bar code applications in libraries.
18. What do you understand by RFID?
19. Discuss various components of RFID system.
20. Point out various advantages of RFID application in libraries.
21. What is the role of a switch in a computer network?
22. Discuss various types of switches.
23. Differentiate Managed switch and Unmanaged switch.
24. What are the basic functions of a Router?
25. Explain various types of Routers.

Long answer type questions

1. Discuss various components of a desktop system.
2. Explain the utility and requirement of scanners in a modern library.
3. Point out various benefits of Wi-Fi network over cable network.
4. What is the role of bar coding and RFID in automating library operations? Explain.

Chapter-9

Library Automation Software: Main Features

After studying this section, students will be able:

- *To define Library Automation*
- *To gain knowledge about the need for Library Automation*
- *To understand about the prime areas of Library Automation*
- *To understand the barrier in automating libraries*
- *To understand the criteria for choosing Library Automation Software*
- *To gain knowledge of some prominent Library Automation Software*

Content

9.1 Introduction

The fifth law of library science, according to Dr. S. R. Ranganathan, is that the library is a growing organism. In the form of growth, a library holds a natural characteristic of change. This change may be reflected in the form of improvements, modifications or advancements. As information and communication technology has revolutionised all fields of public or individual life, the library systems could not keep themselves away from this technological advancement. In this regard, automation was the first and foremost process which was invited by the library professionals in the form of remedy against traditional problems of library practices. After implementing automation, libraries have not only improved the quality of existing library operations but also introduced new and better library services for the satisfaction of its users.

The Encyclopaedia of Library and Information Science says "Automation is the technology concerned with a design and development of the process and system that minimise the necessity of human intervention in their operation."

Swihart Stanley S and Hefley Beryl F have defined the term library automation as "the processing of certain routine clerical function in the library with the assistance of computer or other mechanised or semi automatic equipment".

Therefore, we can conclude, "library automation is the process where we try to perform all library housekeeping operations with the help of library automation software in an integrated environment and with least human interference.

9.2 Need for Library Automation

Although modernisation of organisational practice is a natural process for all systems but being a service institution, it becomes essential for libraries to provide quality support for the maximum satisfaction of their users. In the present scenario, the following reasons compel the library to automate their functions:

- Information explosion
- Increase in library collection

- Inability to explore unlimited literature
- Advancements in telecommunication technology
- Wastage of users' precious time in locating information
- Inability to facilitate wider access of resources in libraries and elsewhere
- For improving the quality of library service
- For promoting cooperative efforts for better library services

9.3 Areas of Automation in Libraries

In the process of automating any organisation, ideally it becomes obvious to automate each and every activity of the same. But for designating a library and information centre as automated, it becomes essential to automate at least housekeeping activities of the library, along with their major or minor work which include:

a. Library administration
   - Activities related to:
     - Office work
     - Letter writing
     - Report writing
   - Accounts
     - Preparation of budget
     - Receipt of services
   - Other works

b. Library acquisition
   - Selection of documents
   - Placing orders
   - Checking receipt
   - Forwarding bills

c. Library cataloguing
   - Generation of catalogue cards using catalogue code
     - CCC
     - AACR II
   - Any list of subject heading
     - Sear's list

- Library of congress list of subject heading

d. Library circulation
   - Issue
   - Return
   - Reserve
   - Record keeping

e. Library serials control
   - Selection and acquisition
   - Receipt and control
   - Indexing of article
   - Circulation and routing
   - Renewal of subscription
   - Binding
   - Searching

f. Other library services
   - Current awareness services
   - Selective dissemination of information
   - Document delivery service
   - Bulletin board services
   - CD-ROM search services
   - On-line information retrieval services

9.4 Problems in Implementing Automation

According to Dr Ranganathan, the "library is a living organism" which is surrounded by 'Books', 'Staff' and 'Users'. Moreover, it is also abound with all other activities which are common in other government institutions. Keeping in view all such characteristics, we can identify the following issues which cause hurdle.

- **Institutional finance:** Being a social institution, a library cannot generate its own finance in the form of profits. Thus, it is fully dependent on its parent organisation or funding body for satisfying its financial requirements. For the purpose of automating its practices, a library requires financial support for procuring hardware and automation software, and developing infrastructure.

- **Technical know-how:** For implementing a successful automated system, the automating process not only requires an expert leadership but also well-acquainted subordinate staff of the library system. In the absence of such support, it is not possible to implement a useful automation solution.
- **Fear of new technology:** Due to the lack of training and awareness of new technology i.e. ICT, it is possible that the staff members of the library do not express their willingness to adopt it. To overcome this problem, we should make them aware of the benefits of library automation and thus motivate them to adopt it.

9.5 Criteria for Choosing Library Automation Software

After taking a decision for moving towards an automated library system, we must be very careful while finalising the automation software for our library. Once we implement any specific software, library staff and the users are bound to make use of it. A wrong decision on software selection may waste our efforts or finance. Therefore, we should take care of the following issues before taking this long lasting decision:

- **General issues**
  - Acceptability of the software
  - Cost
  - Applicability in the library system
  - Reputation of software designer
  - Reputation and goodwill of software supplier
- **Technical issues**
  - Language of the interfaces
  - Operating system
  - Requirement of hardware configuration
  - Additionally required software for implementing the automation software
  - Data storage capacity
  - Easy to use or not
- **Support provided by the software developers**
  - Availability of documentation of the product/software
  - Support for software installation by the supplier

- User training facility from the supplier/developer
- Obtainability of further modifications
- Obtainability of new versions in future
- Club/group of existing software users for discussing issues

- **Legal**
  - Registration/copyright of the product
  - Acceptable provisions of Warranty statement

9.6 Library Automation Software

9.6.1 E-Granthalaya

Primarily E-Granthalaya was started in the form of a project by National Informatics Centre, Banglore, Karnataka for providing automation support to the state-wide public libraries of Karnataka. After observing its acceptability, the library and information services division of National Informatics Center, New Delhi took the designing responsibility of E-Granthalaya for developing it as a national library automation software solution. They formed a team of expert library professionals and involved them in the designing process. Finally, they improved the quality of this software solution with enhanced and user-friendly user interface. They also simplified the workflow of various library operations. After such improvements and modifications, E-Granthalaya is now applicable to all types of libraries and information centers.

Figure 9.1: A view of E-Granthalaya Software

E-Granthalaya, the library automation software, is developed by National Informatics Centre, Department of Electronics and Information Technology, Ministry of Communications and Information Technology, Government of India. E-Granthalaya software is useful for automating housekeeping activities of all types of libraries. Through this software, library may provide its services to all types of library users. This software is equally applicable as stand-alone solution and networked solution through its client server-based database. In network based solution, its Web OPAC is installed on the server platform while the data entry program is installed on the client's system. E-Granthalaya also provides local area network or web-based data entry support for a group of libraries for implementing centralised and cooperative services. It can also provide its output in the form of union catalogue. E-Granthalaya provides Web OPAC interface for facilitating internet-based access of the institutional catalogue/OPAC. E-Granthalaya is based on Windows Operating System and is UNICODE Compliant. Therefore, it can support data entry in other local languages also.

The first version of E-Granthalaya was released with the title e-Granthalaya 1.0 in the year 2003, it was based on MS SQL Server 7. The second version of E-Granthalaya was e-Granthalaya 2.0 and released in the year 2005, it was based on MS SQL Server 2000. The third version was e-Granthalaya 3.0 and released in the year 2007, it was based on MS SQL Server 2005. Fourth and the latest version of E-Granthalaya is e-Granthalaya 4.0 released in the year 2013, it is based on MS SQL Server 2008 R2/PostGresSQL.

9.6.1.1 System requirements

For single user mode:

Hardware:

Pentium or above with backup device, Min 1 GB RAM, 40GB HDD

Operating System:

Windows XP(SP2)/Vista/win 7

Database Management System (DBMS):

MS SQL Server 2005/2008 (Express Ed)

Connectivity:

LAN/Internet Connectivity

For client server mode:

Server PC: Hardware:

High-End Server / Rack Server with 4GB RAM, 80GB HDD

Operating System:

Windows Server 2008/R2

Rationale Database Management System:

MS SQL Server 2008 R2

Connectivity:

LAN/Internet Connectivity

Barcode printer with Barcode reader

Software components:

For facilitating automation based operations, E-Granthalaya incorporates following components in its Server PC while others are installed in its client's system:

Database (MS SQL Server 2005/2008) - on Server PC (Windows 2003/2008)

Web OPAC - on Server PC

Data entry program - in client's system

9.6.1.2 Features

The most prominent features of e-Granthalaya library automation system are as follows:

- It runs on popular windows platform only (Win XP/vista/7/Server 2003/2008).
- It provides LAN or WAN based data entry support solution.
- It is UNICODE compliant and supports data entry in local language.
- It provides module - wise permission or access to its software users.
- Its work-flow is customised as per the requirements of Indian libraries.
- It provides retro-conversion as well as full cataloging mode of data entry.
- It provides authority files / master tables for authors, publishers, subjects, etc.
- It is based on multi-volume, multi-copy and child-parent relationship pattern.
- It allows scan support download of catalogue records from the internet.
- It is based on Z39.50 client search protocol.
- It prints all exhaustive reports.
- It exports records in CSV/Text File / MARC 21 / MARC XML / ISO:2709 / MS ACCESS or in EXCEL format.
- It works on common / centralised database for a number of libraries, which minimises the efforts of data entry.
- It provides the printout of the accession register.

- Its search module is built-in with basic / advance / Boolean parameters.
- It provides library statistics reports.
- CAS and SDI services can be generated through the documentation bulletin.
- It generates bibliography.
- It provides data entry statistics.
- It supports news clipping services.
- Digital library feature is integrated with it for uploading / downloading pdf documents, html documents, etc.
- It processes micro-documents and provides services like articles/chapter Indexing.
- It provides in-built serial control system for controlling the subscription of serials.
- Through its budget modules, bill register may be generated. It supports multi-budget heads.
- It can import data from any structured source.
- It supports a web based OPAC Interface with separate membership module.

9.6.1.3 Modules of e-Granthalaya

An e-Granthalaya library automation software is based on modular structure. Separate modules have been designed to perform various housekeeping activities of a library. This modular structure not only increases the functionality of all activities but also ensures a task or module specific security. It provides the following modules:

Figure 9.2: Front page of e-Granthalaya

1. Administration
2. Book acquisition
3. Cataloguing
4. Circulation
5. Serials
6. Article indexing
7. Budgets
8. Search/OPAC

9.6.2 Software for University Libraries (SOUL)

Software for University Libraries (SOUL) is an integrated library management software. It is developed by Information Libraries Network Centre (INFLIBNET), Ahmedabad. INFLIBNET centre is an Inter University Center of University Grants Commission (UGC), New Delhi. This automation software is developed for fulfilling the requirements of college libraries and university libraries. This software has user-friendly interfaces for performing various housekeeping operations. It is developed for client-server environment. SOUL is compliant to international standards for bibliographic formats and networking protocols. As it is developed by library experts and IT professionals, it provides quality solutions for all library operations in the form of independent modules. Although SOUL is developed for fulfilling the requirements of university and college libraries, it is suitable for all types of libraries. SOUL was first released in the year 2000 in CALIBER with the title SOUL 1.0.

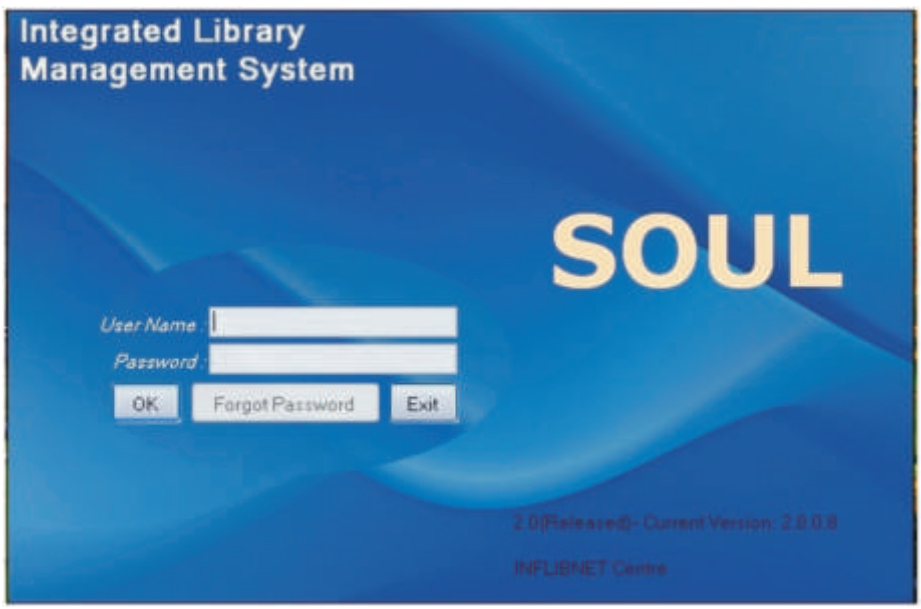


Figure 9.3: Login page of SOUL Software

Present version of SOUL is SOUL 2.0. It was released in the year 2009. The database SOUL 2.0 version is designed with the latest version of MS-SQL and MySQL. This version is compliant to popular international standards like MARC 21, Unicode based Universal Character Sets for multilingual bibliographic records and NCIP 2.0 and SIP 2 protocols for electronic surveillance.

9.6.2.1 Features of SOUL

The most prominent features of SOUL 2.0 are as follows:

- It provides multilingual support for Indian and other foreign languages which is based on UNICODE.
- It is compliant to MARC21, AACR-II, MARC-XML and other international standards.
- In case of protocols, it is NCIP 2.0 compliant for RFID support and other similar applications for facilitating electronic surveillance, self check-out and check-in support.
- It is based on client-server architecture.
- It supports multi-platform for bibliographic databases like My SQL, MS-SQL, etc.
- It also supports cataloguing practice of electronic documents like e-journals, e-books, etc.
- For supporting digital library, it facilitates link to full-text articles and other similar digital objects.
- It provides default templates for data entry of various type of documents.
- Users can develop reports of their choice and format.
- It also supports the process of stock verification and book bank for students.
- It provides inbuilt facility for sending reports through e-mails.
- It presents a user-friendly OPAC with simple and advanced search.
- As it is ISO-2709 standard compliant, it supports data exchange.
- Its circulation is based on the concept of single window operation.
- INFLIBNET has appointed regional coordinators for all of the regions for assistance and maintenance work.
- It is cost-effective.

9.6.2.2 Modules of SOUL 2.0 version

SOUL 2.0 is a modular library management suite. It consists of the following modules

for performing library operations. All these modules have been further divided into their sub modules for fulfilling its functional requirements:

- Administration
- OPAC
- Acquisition
- Catalogue
- Circulation
- Serial Control

9.6.2.2.1 Acquisition

This module enables the library staff to perform all major functions like:

- Order processing, order cancellation and reminder generation for suppliers;
- Receipt, payment and budgetary control;
- Suggestions management;
- Master files for currency, vendors, publishers etc.;
- Report generation.

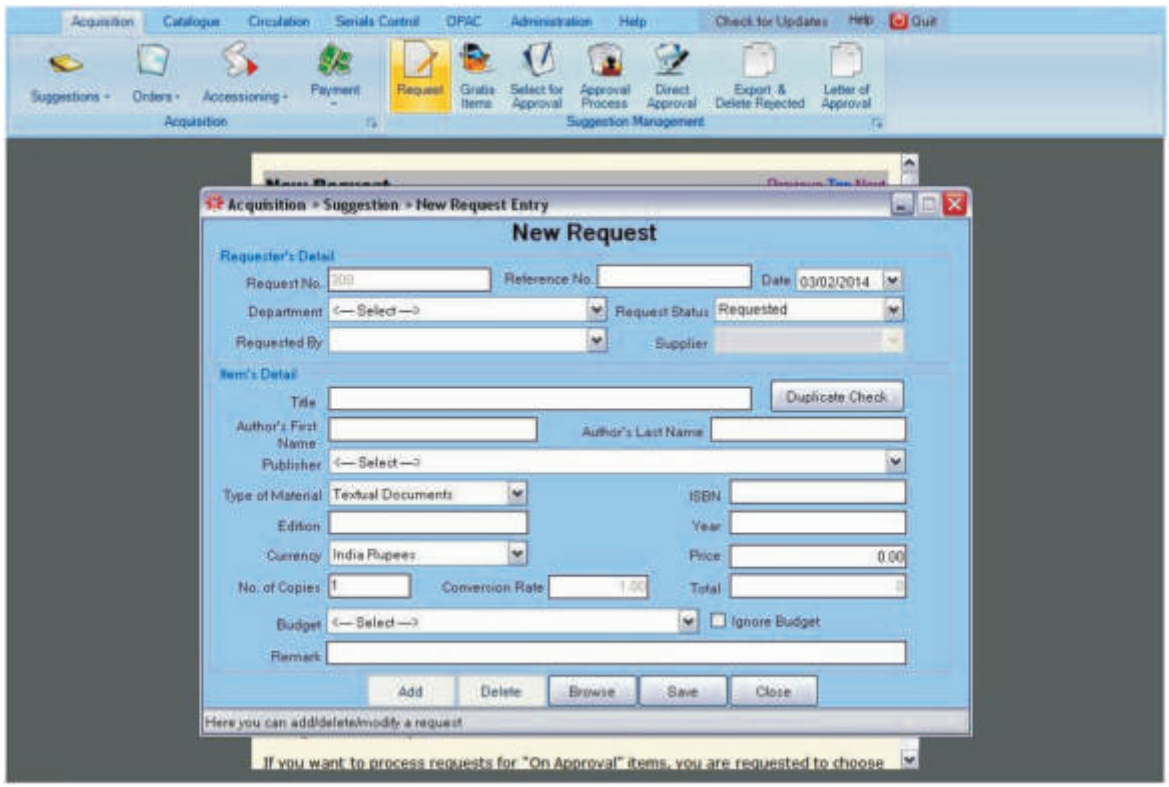


Figure 9.4: Acquisition request page: SOUL

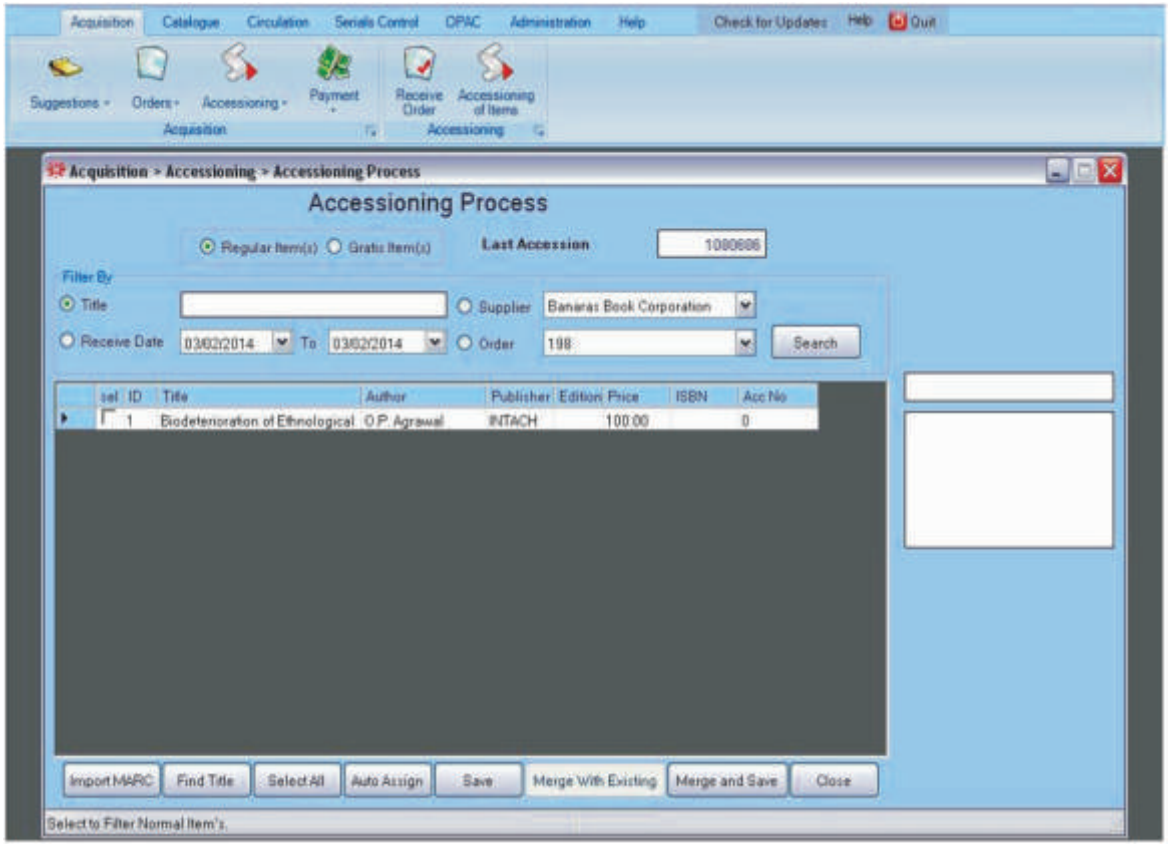


Figure 9.5: Accessioning Process: SOUL

9.6.2.2.2 Catalogue

This module is designed for retrospective conversion of documents. It provides proper support to library staff for processing recently acquired documentary resources. The main features of this module are:

- It allows library cataloguer to create their own templates for entering data.
- It is based on MARC21.
- It allows library staff to create self-customised reports.
- Due to its ISO-2709 compliant feature, it supports copy cataloguing in MARC21 format.
- It provides separate master database of publishers.
- It is a multilingual database.
- It supports MARC 21 bibliographic format.

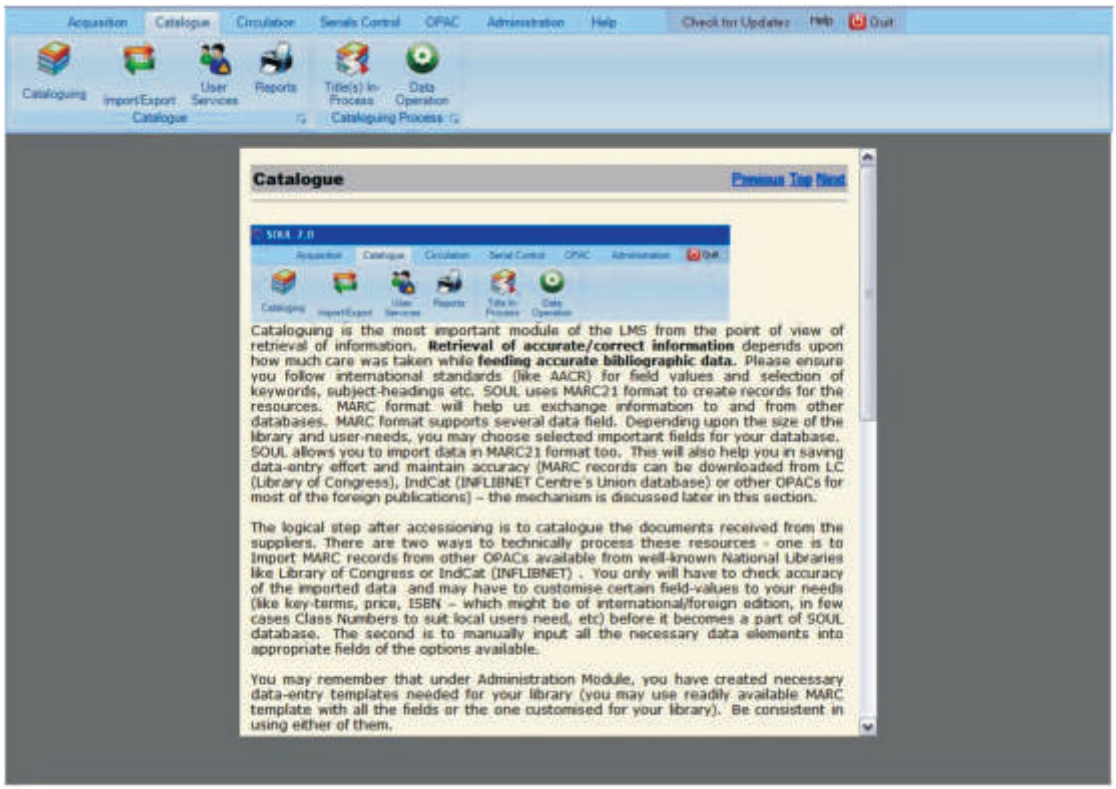


Figure 9.6: Catalogue page: SOUL

9.6.2.2.3 Circulation

The circulation module is NISO Circulation and Interchange Protocol (NCIP) version 2.0 compliant for electronic surveillance and RFID based transactions. The main functions of circulation module are:

- Providing membership for all possible types of users;
- Issue, return and reservation based transaction;
- Inter library loan;
- Calculation and payment of overdue charges;
- Generation of reminders;
- Maintenance support for items in the form of binding, lost, replacement, missing, withdrawal, etc;
- Report generation based on specific requirements.

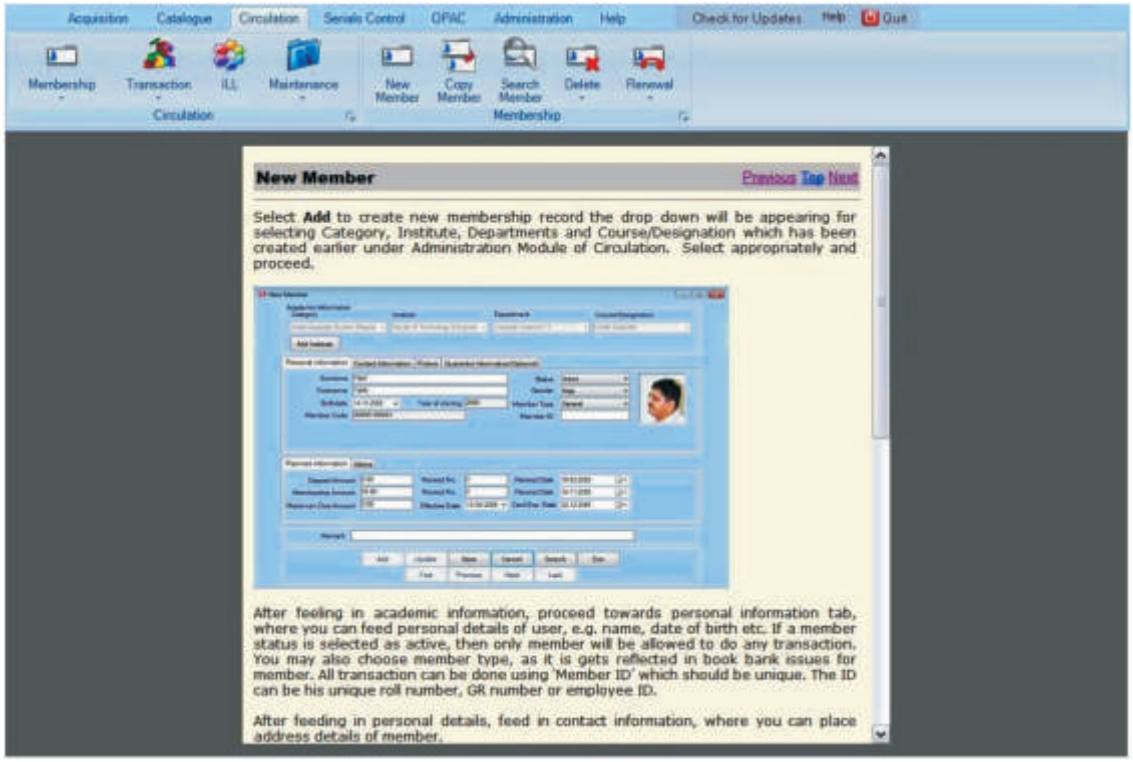


Figure 9.7: Membership page: SOUL

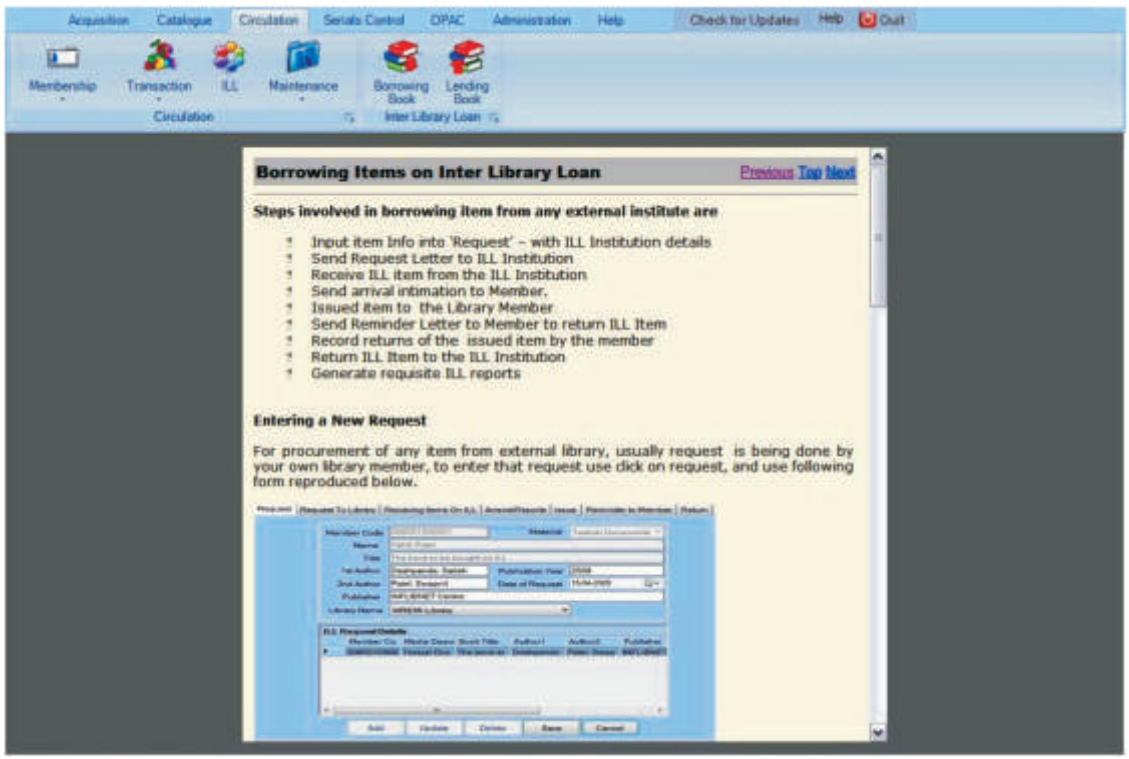


Figure 9.8: Inter Library Loan: SOUL

9.6.2.2.4 On-line Public Access Catalogue (OPAC)

The On-line Public Access Catalogue (OPAC) facility of SOUL 2.0 is very simple. It supports advanced search facility by using author, title, corporate body, conference title, keywords, subject headings, accession number, class number, series name or any combination of two or more elements. The main features of this module are as follows:

- Simple Search;
- Boolean Search;
- Advanced Boolean Search;
- Downloading and displaying of records in MS Excel, PDF or MARC-XML format; and
- Search support for the items which are in the process of acquisition.

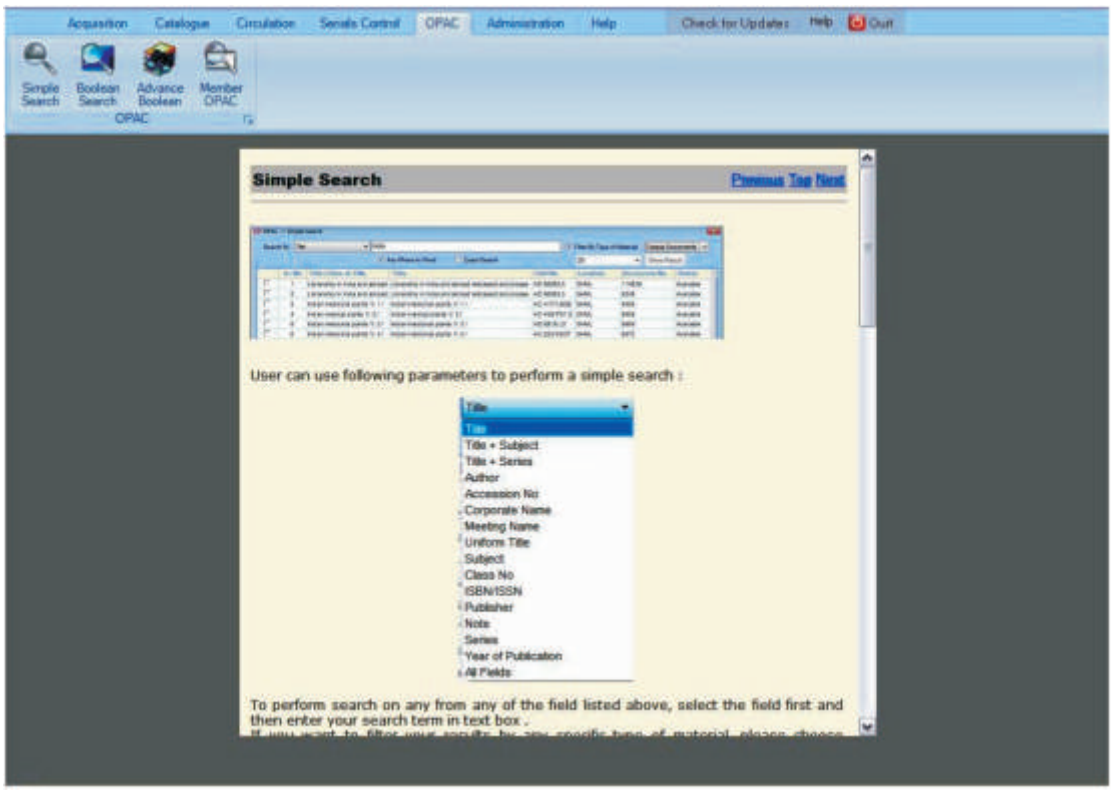


Figure 9.9: OPAC: SOUL

9.6.2.2.5 Serial Control

Management of serials is the most complex task for a library. This module assists library staff for managing serials in an effective and efficient manner. It is developed on the basis of the process of KARDEX system. The features of this module are as follows:

- It takes suggestions from users.
- It maintains the master database.
- It controls the subscriptions of serials.
- It supports check-in process of individual issue.
- Export and import support is provided by this module due to its ISO 2709 bibliographic exchange format compliant feature.
- It facilitates article indexing of journal or edited book articles.
- It supports cataloguing of electronic journals.
- It maintains history of changes in a journal.

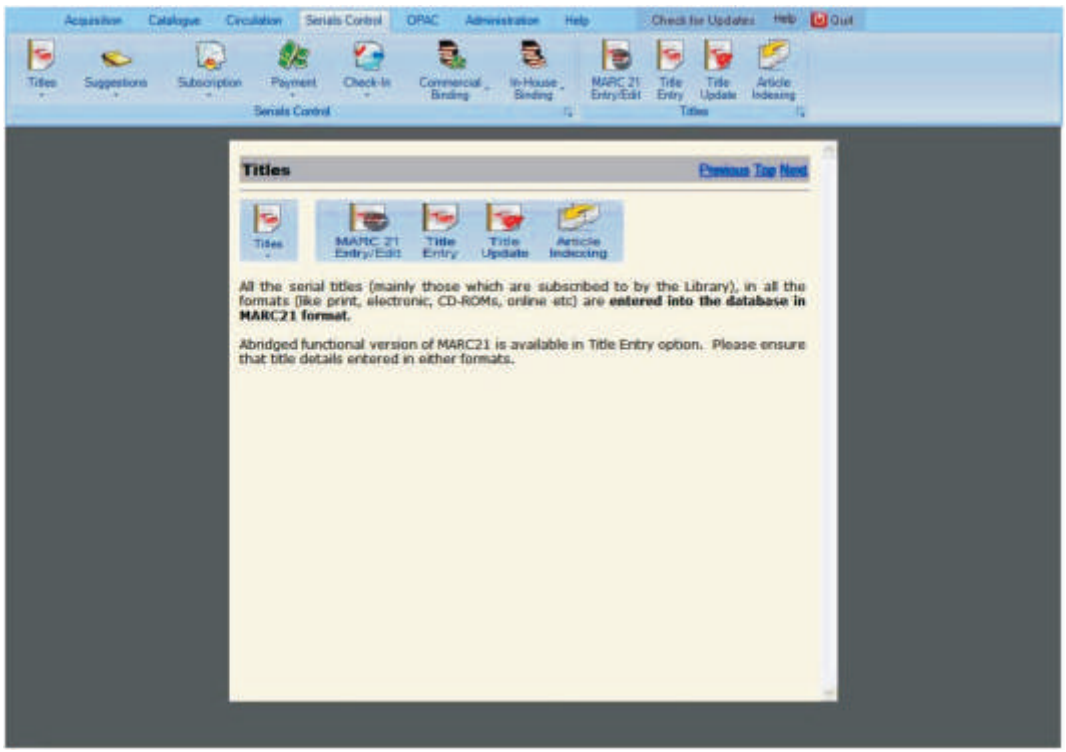


Figure 9.10: Serial Control: SOUL

9.6.2.2.6 Administration

This module of SOUL is divided into three major sections for adding new features. These sections are user management, system parameters and masters. The administration volume of SOUL 2.0 supports the following features:

- It can generate various groups of users on the basis of library policy.
- It supports transactional rights over the system.
- It facilitates transaction level security.
- In all modules, common master database is used.

Figure 9.11: Admin page: SOUL

9.6.3 LIBSYS

LIBSYS is a web-based library software which is developed by LIBSYS Ltd., Gurgaon, Haryana. LIBSYS is an integrated multi-user library management software. It has a tree structure system with each part of the system comprising different sub-parts having excellent functionality.

LIBSYS is the most useful software in India and is used by different types of libraries. It is an integrated library management software based on programming language C and C++. LIBSYS has its own bibliographic database in the MARC format. It supports various types of documents. LIBSYS provides full graphic user interface.

LIBSYS supports majority of Indian languages/scripts using ISM Publisher and GIST of C-DAC. There is also a provision of extra 'Unicode' support in LIBSYS which assists in operating both International and Indian languages/scripts. LIBSYS works on various platforms like WINDOWS (NT/2000/XP), UNIX and LINUX.

LIBSYS provides various modules for conducting operations related to acquisition, cataloguing, circulation, serials, article indexing, Web-OPAC and reports generation. It supports international standards like MARC21, Unicode, SRU-SRW, Z39.50, NCIP-NISO and SICI-Barcode.

LIBSYS is an easy to operate software, due to which each and every library personnel can use it comfortably without requiring any special computer skill. It ensures high productivity because of minimal data entry requirements, maximum possible integration of functions and powerful search support.

9.6.4 KOHA

KOHA is the first popular open source library management system, which was created in 1999 and was developed in 2000 by Katipo Communication for the Horowhenua Library trust in New Zealand. KOHA being the first open source integrated library management system, includes all the main features related to library management like easy interface for librarians and users, Web 2.0 compliant (tagging and RSS feeds), union catalogue facility, customizable search, Circulation and borrower management, full acquisition system including budgets and pricing information, etc.

It is web-based open source software, which is distributed under the general public license (GNU). KOHA works on windows, UNIX, Linux and Mac OS platforms. KOHA is a comprehensive system that has the capacity to run a library intelligently, whether it is large or small, real or virtual. KOHA supports copy cataloguing. It is based on the standards/protocols like z39.50, MARC21 and UNIMARC. KOHA also has the capacity to manage digital libraries and online and offline electronic resources.

9.7 Summary

Being a service institution, library bound us to update our library services for providing the best, fastest and most convenient information support while exploiting latest technological advancements. After going through the above mentioned concepts it is now obvious that we can facilitate better library support in an automated library system. We can conveniently manage various problematic issues like increasing workload, information explosion, limited staff and even limited recurring financial support. We have also discussed some of the quality library automation software for developing better understanding.

9.8 Glossary

KARDEX: It is one of the library furniture which acts as a tool for maintaining serials control in the library. It was developed by Remington Rand.

RFID: RFID stands for Radio Frequency Identification technology. It is the latest technology which is used in library for implementing theft detection system.

CAS: The full form of CAS is Current Awareness Service. This is a generalised service for keeping all users aware of the advancements, updation and events in their respective libraries.

SDI: The full form of SDI is Selective Dissemination of Information. This is a specialised service for keeping a specific user aware of the addition of information of his/her interest in his/her respective library.

9.9 Exercise

Short questions

1. Define the concept of Library Automation.
2. Why is automation required in an organization?
3. Discuss the need of library automation.
4. What are the barriers in automating a library?
5. Point out various areas of automation in a library.
6. What type of support libraries are expected from the software developer?
7. Point out some essential technical issues to be considered while selecting automation software?
8. Discuss various prominent features of e-Granthalaya.
9. Write a short note on Libsys.
10. Write a short note on the history of development of e-Granthalaya.
11. Discuss various features of SOUL.
12. Write various activities of SOUL's circulation module.
13. Write a short note on KOHA.
14. Write various modules of e-Granthalaya.
15. Discuss various information searching supports of the OPAC of SOUL software.

Long questions

1. While defining library automation, discuss the need of automating a library for providing quality information support.
2. Discuss various modules of SOUL along with their functions and activities.
3. Discuss various issues to be considered while choosing suitable automation software for library in detail.
4. How can a library provide better information services in an automated environment? Discuss in detail.
5. Write an essay on the library automation software while discussing any two software?

Project Work

Setting up and Running a School Library

Project

The students are required to do this project work as a part of their academic course. This project gives simple step-by-step explanations and covers all aspects of setting up and running a library, including:

- Selecting books for the library.
- How to make a catalogue, classify books and establish simple and effective library systems.
- Arrangement of books on the shelves.
- Printing and pasting of different labels.
- How to encourage other students to involve themselves in library activities.

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Figure 5.5: OPAC dialog box, LS Premia Software of Libsys.

Figure 5.6: Authors catalogue (taken from Planning Commission Library)

Figure 5.7: Authors catalogue (taken from Planning Commission Library)

Figure 5.8: OPAC of Planning Commission Library

Figure 5.9: OPAC (taken from the Delhi University Website)

Figure 5.10: OPAC (taken from the Delhi University Website)

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Figure 1: Smith, Tim , Reference Librarian & Web Developer, Ohio University Libraries (http://www.library.ohiou.edu/research/the-research-process/primary-secondary-sources/), retrieved on 10/02/2014

Figure 2: With permission from the University Libraries, University of Maryland, http://www.lib.umd.edu/ues/guides/primary-sources , retrieved on 10/02/2014

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Figure 8.6: Website of kenrockwell

Figure 8.7: Homepage of scanmaster

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Figure 8.9: http://uk.shopping.com

Figure 8.10: Website of new digital photography

Figure 8.11: http://alioting.blogspot.in/2013/04/definition-of-internal-and-external.html

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Figure 9.1: Screenshot taken from Botanical Survey of India.

Figure 9.2: Screenshot taken from e-Granthalaya.

Figure 9.3: Screenshot taken from Software for university libraries.

Figure 9.4: Screenshot taken from Software for university libraries (acquisition module).

Figure 9.5: Screenshot taken from Software for university libraries (Accessioning process).

Figure 9.6: Screenshot taken from Software for university libraries (catalogue).

Figure 9.7: Screenshot taken from Soul (New member).

Figure 9.8: Screenshot taken from Soul (Inter library loan).

Figure 9.9: Screenshot taken from Soul (OPAC).

Figure 9.10: Screenshot taken from Soul (Serial control).

Figure 9.11: Screenshot taken from Soul (Administration module).

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